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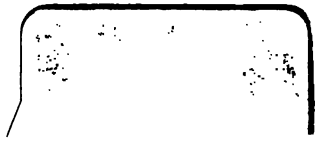
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THE

BOY'S WONDER BOOK:

AN

ILLUSTRATED MAGAZINE

OF

INSTRUCTION AND AMUSEMENT.



THE WONDERS OF THE OCEAN.

INTRODUCTION.—THE AQUARIUM.

IN the aquarium, we have a most convenient field for the study of Natural History: to learn the varieties, nature, names, habits, and peculiarities, of those endless forms of animated existence which dwell in the hidden depths of the sea, and, at the same time, to improve our minds by cultivating our powers of observation.

The pleasure derived from the aquarium comes from the excitement of finding and collecting specimens, as well as from watching the tank itself. There can be no more pleasant accompaniment to the seaside walk of the casual visitor, or summer resident of a watering place, than to search for marine plants and animals among the fissures, rocks, and tide-pools of the sea-washed beach or cape.

Nature is always as varied as beautiful. Thousands of strange forms sport under the shadow of the brown, waving sea-weeds, or among the delicate scarlet fronds of the dulse, which is found growing in the little

ponds that the inequalities of the beach have retained. It is down among the great boulders which the ocean piles upon our coasts, that we may find endless varieties of life to fill the aquarium, though not those more gorgeous hues which distinguish the tenants of the coral reefs on tropical shores. Yet, even here, Nature is absolutely infinite; and we shall find ourselves, day after day, imitating that botanist who, walking through the same path for a month, found always a new plant which had escaped his notice before. So in exploring the open sea, besides the pleasure of sailing along a variegated coast with sun and blue water, we have the constant excitement of unexpected discovery; for as often as we pull up the dredge some new wonder is revealed.

Words fail to describe the wonders of the sea. And all that we drag from the bottom, all that we admire in the aquarium, are but a few disconnected specimens of that infinite whole which makes up their home.

So too, in watching the aquarium itself, we shall see endless repetitions of those "sea-changes" which Shakspeare sang. For all this detail, labour, and patient care we may reasonably find two great objects: first, the cultivation and advancement of natural science; second, the purest delight and healthiest amusement.

Ancient mythology typified the changing wonders of aquatic nature, as well as the fickleness of the treacherous sea, in those shifting deities, Glaucus and Proteus, who tenanted the shore. The one, the fancy of Ovid metamorphosed from a restless man to a fickle sea-god; the other assumed so many deceptive shapes to those who visited his cave, that his memory has been preserved in the word Proteans. Such fancies well apply to a part of Nature which shifts like the sands, and ranges from the hideous Cuttle fish and ravenous Shark to the delicate Medusa, whose graceful form and trailing tentacles float among the waving fronds of coloured Algæ, like

> Sabrina fair,
> Under the glassy, cold, translucent wave,
> In twisted braids of lilies knitting
> The loose train of her amber-dropping hair.

HOW TO MAKE AN AQUARIUM.

The best material for an aquarium.—Any vessel that will hold water can, of course, be readily converted into an aquarium; but glass is the best material, because it gives us a clear view of the contents at all times. And this clear view is not given by a glass globe, which refracts the light irregularly and magnifies and distorts whatever is within it; we shall find an advantage in having the sides of the aquarium parallel and the form rectangular. As the weight of an aquarium, when filled with water, is enormous—far more than we should suppose—it follows that it must be made strong enough to resist pressure both from above and from within. The floor and stand, the frame and joints, must be strong and compact, and the walls of plate or thick crown glass. The bottom should be of slate;

and if it is designed to attach arches of rockwork inside to the ends, they, too, must be of slate, as cement will not stick to glass unless the surface be ground or roughened. The frame should be of iron, zinc, or well turned wood; the joints closed with white-lead putty; the front and back of glass.

There is one objection to having the side which faces the light of transparent glass, which is, that it transmits too much glare of sunlight for the health of the animals. In Nature's aquarium, the light enters only from above; and the fish and delicate creatures have always, even then, the shady fronds of aquatic plants or the shelter of the rocks, as well as the power of seeking greater depths of water where the light is less, to protect themselves from too intense a sunshine. It is, therefore, sometimes advisable to have the window side of the aquarium made of glass stained of a green colour. It is also desirable that all aquarial tanks should have a moveable glass cover to protect them from dust, impure gases and smoke.

Size.—An aquarium may be made of any size—but should not be too small, in fact the larger the better—holding not less than eight nor more than thirty gallons of water. One made two feet long, eighteen inches wide, and eighteen inches deep, will hold twenty gallons. Smaller and very pretty tanks may be made fifteen inches long, by twelve inches wide, and twelve deep. Great varieties in form and elegance may be adapted to various situations.

Two distinct kinds of aquaria.—There are two kinds of aquaria, the fresh water and the salt, or sea-water; the one fitted for the plants and animals of ponds and rivers, the other for the less known tenants of the sea. They are best described as the River and the Marine Aquarium, and they differ somewhat from each other. We shall speak first of the

FRESH WATER, OR RIVER AQUARIUM.

The tank being prepared, and well seasoned, by being kept several weeks alternately full and empty and exposed to the sun and air, so that all paint, oil, varnish, tannin, etc., may be wholly removed, the next thing is to arrange the bottom and plant it. Some rough fragments of rock, free from iron, or other metals that stain the water, may be built into an arch with cement, or piled up in any shape to suit the fancy. The bottom should be composed entirely of shingle or small pebbles well washed; common silver sand, washed until the water can be poured through it quite clear, is also suitable.

Mould, or soil adapted to ordinary vegetation, is not necessary to the aquatic plants, and is, moreover, worse than useless, since it necessitates the frequent changing of the water for some time, in order to get rid of the soluble vegetable matter, and promote the growth of Confervæ, and other low forms of vegetation, which are obnoxious.

Aquatic plants of all kinds have been found to root freely and flourish in pebbles alone, if their roots be covered. The plants should be carefully cleared of all dead parts, the roots attached to a small stone, or laid on the bottom and covered with a layer of pebbles and sand.

The bottom being planted, the water may be introduced through a watering-pot, or poured against the sides of the tank, so as to avoid any violent agitation of the bottom. The water should be pure and bright. River water is best; spring water will do, but must be softened by the plants for some days before the animals are put in.

Sunshine is good for the tank at all seasons of the year. The fresh-water aquarium requires more of it than the salt-water. The amount of oxygen given off by the plants—and, hence their growth and the sprightliness of the fishes—is very much increased while the sun is shining on them.

The plants.—In selecting plants for the aquarium, some regard is to be paid to the amount of oxygen they will evolve, and to their hardiness, as well as to their beauty. When it is desired to introduce the fishes without waiting long for the plants to get settled, and to have given off a good supply of oxygen, there is no plant more useful than the *Callitriche*, or Brook Starwort. It is necessary to get a good supply, and pick off the green heads, with four or six inches only of stem, wash them clean, and throw them into the tank, without planting. They spread over the surface, forming a rich green ceiling, grow freely, and last for months. They are continually throwing out new roots and shoots, and create abundance of oxygen. Whenever desired, they can be got rid of by simply lifting them out.

The *Vallisneria*, or Tape Grass, common in all our ponds, is essential to every fresh-water tank. It must be grown as a bottom-plant, and thrives only when rooted. The *Nitella* is another pleasing variety. The *Ranunculus aquatalis*, or Water Crowfoot, is to be found in bloom in almost every pond by the middle of May, and continues so into the autumn. It is of the buttercup family, and may be known as a white buttercup, with a yellow centre. The floating leaves are fleshy, the lower ones finely cut. It must be very carefully washed, and planted from a good joint, allowing length enough of stem to reach the surface. Some of the blossom-heads may also be sprinkled over the surface, where they will live and bloom all through the summer. The *Hydrocharis*, or Frog's Bit, and the *Alisma* or Water Plantain, are also easily obtained, hardy and useful, as well as pleasing. Many rarer and more showy varieties may be cultivated; we have given only the most common and essential. All the varieties of *Chara* are interesting to the microscopist, as showing the phenomenon of the circulation of the sap, or cyclosis.

The animals.—Of the living tenants of the aquarium, those most interesting, as well as of the highest organization, are the fishes. And among fishes, the family of *Cyprinidæ* are the best adapted for our purpose, for we must select those which are both hardy and attainable. *Cyprinus gibelio*, the Prussian Carp, is one of the best. It will survive, even if the water should accidentally become almost exhausted of oxygen. It may be taught, also, to feed from the hand. None of the carp are very carnivorous. *Cyprinus auratus*, or the Gold-fish, is one of the most ornamental objects in an aquarium. But the minnow, *Cyprinus phoxinus*, is the jolliest little fish in the tank. He is the life of the collection, and will survive the severest trials

of heat and cold. The Chub, a common tenant of our ponds, is also a good subject for domestication. The Tench and Roach are very interesting, but also very delicate. Among the spiny-finned fishes, the Sticklebacks are the prettiest, but so savage that they often occasion much mischief.

Stocking the aquarium.—For a tank containing twelve gallons, the following selection of live stock is among those recommended:—

Three Gold Carp,	A dozen Minnows,
Three Prussian Carp,	Six Bleak,
Two Perch,	and
Four large Roach,	Two dozen Planorbiæ.

Some varieties of the Water Beetles, or Water Spiders, which the fishes do not eat, may also well be added. The Newt, too, is attractive and harmless.

Purification.—All may go on well, and the water remain clear; but after the tank has been established several weeks, the inner sides of the glass will show a green tinge, which soon increases, and interferes with the view. This is owing to the growth of a minute confervoid vegetation, which must be kept down. For this purpose the Snail is the natural remedy, being the ready scavenger of such nuisances. Snails cling to the sides, and consume and clear away all this vegetable growth. The *Lymnea* is among the most efficient, but unfortunately is destructive by eating holes in the young fronds of the larger plants, and thus injuring their appearance. To this objection some other varieties of snail are not liable. The *Paludina* and *Planorbis* are the only kinds which are trustworthy. The former is a handsome snail, with a bronze-tinted globular shell; the latter has a spiral form. These will readily reduce the vegetation; and to preserve the crystal clearness of the water, some Mussels may be allowed to burrow in the sand, where they will perform the office of animated filters. They strain off matters held in suspension in the water, by means of their siphons and ciliated gills. With these precautions a well-balanced tank will long retain the pristine purity of nature.

Where specimens may be obtained.—Specimens for the river-aquarium may be readily obtained in almost any brook or pool, by means of the hand-net or dredge. It will be astonishing to see the variety of objects brought up by a successful haul. Small fish, newts, tadpoles, mollusks, water-beetles, worms, spiders, and spawn of all kinds, will be visible to the naked eye; while the microscope will bring out thousands more of the most beautiful objects.

A very different style of appearance and of objects distinguishes

THE SALT WATER, OR MARINE AQUARIUM.

As the greater part of the most curious live stock of the salt-water aquarium live near the bottom or upon it; so the marine tank should be more shallow, and allow an uninterrupted view from above. Marine creatures are more delicately constituted than fresh-water ones, and they demand more care, patience, and oversight to render the marine aquarium successful.

Sea-sand and pebbles, washed clean, form the best bottom for the salt-water aquarium. It must not be forgotten that many of the marine tenants are burrowers, and require a bottom adapted to their habits. Some rock-work is considered essential to afford a grateful shelter and concealment to such creatures as are timid by nature, and require a spot in which to hide: this is true of many fishes. Branches of coral, bedded in cement, may be introduced, and form beautiful and natural objects, on which plants will climb and droop gracefully.

Sea-water dipped from the open sea, away from the mouths of rivers, is of course the best for the marine aquarium. If pure, it will bear transportation and loss of time before being put into the tank. It may, however, not always be possible to get sea-water, and it is therefore fortunate that artificial sea-water will answer just as well. The necessary salts are sold in packets by certain chemists, and all that is necessary is to add them to a proper quantity of fresh water.

Planting.—The tank having been prepared and seasoned with the same precaution used for the river aquarium, and having a clear bottom, with a good supply of water, is now ready for planting. Many beautifully-coloured and delicately-fringed *Algæ* and *Sea-Wracks* will be found on the rocks at low tide, and will strongly tempt the young naturalist to consign their delicate hues to the aquarium. All such temptations must be resisted. Green is the only colour well adapted for healthy and oxygenating growth in the new tank. A small selection of the purple or red varieties may perhaps be introduced and successfully cultivated at a later day, but they are very delicate, while the browns and olive-greens are pretty sure to die and corrupt the water. It must be remembered, too, that the algæ are cryptogamous, and bear no visible flowers to delight the eye or fancy. Of all marine plants, the *Ulva latissima*, or Sea Lettuce, is first and best. It has broad, light-green fronds, and is a hardy and rapid grower, and hence a good giver of oxygen. Next to this in looks and usefulness comes the *Enteromorpha compressa*, a delicate grass-like alga. After a while, the *Chondrus crispus*, or common Carrageen Moss, may be chosen and added. These ought to be enough for some months, as it is not safe to add too many at once. Then the green weeds, *Codium tomentosum* and *Cladophora*, may be tried; and still later, the beautiful *Bryopsis plumosa*. But it is much better to be content with a few Ulvæ, and others of that class, to begin with, for half-a-dozen of these will support quite a variety of animal life.

The live stock.—After a few hardy plants are well set and thriving for a week or two, and the water is clear and bubbly with oxyen, it will be time to look about for the live stock of the marine aquarium. Fishes, though most attractive, must be put in last; for as they are of the highest vitality, so they require the most oxygen and food, and hence should not be trusted until everything in the tank is in good working order.

Anemones.—The first tenants should be the hardy varieties of the Sea-Anemones, or Actinæ, which are Polyps of the class Radiata. The *Actinia mesembryanthemum* is the common smooth anemone, abounding on the

coast, and often to be found attached to stones on the beach. When closed, it greatly resembles a ripe strawberry; when expanded, a circle of bright blue beads, or tubercules, is seen within the central opening, and numerous tentacles, or coral-like fingers, unfold from the centre and spread out on all sides. It remains expanded for many days together, if the water be kept pure; and, having little desire for locomotion, generally stays where it is first placed or thereabouts. It is a carnivorous creature, and seeks its food with its ever-searching tentacles, thus drawing in fishes and mollusks, but most frequently the minute Infusoria. Like other polyps, it may be cut in two, when each part becomes a new and perfect creature. It is a very pretty and hardy object in the aquarium. There are many varieties, some of which are very delicate, as the *Actinia anguicoma*, or Snaky-locked Anemone; and the pink and brown *Actinia bellis*, which so resembles a daisy. Others are obtainable only by deep-sea dredging, such as the *Actinia parasitica*, which usually inhabits the shell of some defunct mollusk. And, what is more curious, we usually find in the same shell a pretty crab, who acts as porter to the anemone: "He drags the shell about with him, like a palanquin on which sits enthroned a very bloated, but gaily dressed potentate, destitute of power to move it for himself."

The *Actinia gemmacea*, or Gemmed Anemone; the *Actinia crassicornis*, and the Plumose Anemone, are all beautiful but tender varieties.

The anemones require but little care; they do not generally need feeding, though the Daisy and Plumose Anemone greedily take minced mutton or oyster. But, as a rule, there are enough Infusoria for their subsistence; and it is safer not to feed them, as any fragments of food not consumed will decay and contaminate the water.

Mollusks.—Next in order of usefulness, hardiness, and adaptability to the new aquarium, come the Mollusks; and of these, Snails and Periwinkles claim our respectful attention, as the most faithful, patient, and necessary scavengers of the confervoid growths, which soon obscure the marine aquarium.

Crustacea.—Of Crustacea, the Prawns and the smaller kind of Crabs may be admitted to the aquarium, though but sparingly. They are rude, noisy, quarrelsome, and somewhat destructive, but, on that very account, amusing tenants of the tank.

The Hermit Crab.—All are familiar with the mode in which the Soldier, or Hermit crab, takes possession of and lives in the shells of Whelks and Snails. Poorly protected behind by Nature, the homeless crab wanders about seeking a lodging; presently he meets with an empty shell, and, after probing it carefully with his claw to make sure that it is not tenanted, he pops into it back foremost in a twinkling, and settles himself in his new house. Often, too, he may be seen balancing the conveniences of the shell he is in and of another vacant lodging he has found in his wanderings; and he even ventures out of his own; and into the other, and back again, before being satisfied as to their respective merits. In all these manœuvres, as well as in his daily battles with his brethren, he is one of the drollest of creatures.

Other tenants.—As we advance in our practice with the aquarium we may venture to introduce more delicate lodgers: such are the beautiful family of the *Annelidæ;* the *Serpula,* in his dirty house; and the *Terebella,* most ancient of masons, who lays the walls of his house in water-proof cement.

Zoöphytes.—The great class of Zoöphytes can be introduced, but many varieties of them will be found already within the aquarium, in the company of their more bulky neighbours. These peculiar creatures, or things, form the boundary where the last gleam of animal life is so feeble and flickering as to render it doubtful whether they belong to the animal or the vegetable kingdom. Agassiz calls them *Protozoa*—primary existences. Some divide them into two great classes, namely, the *Anthozoa,* or Flower-Life; and the *Polyzoa,* or Many-Life, in which the individuals are associated in numbers. They are mostly inhabitants of the water; all are destitute of joints, nerves, lungs, and proper blood vessels; but they all possess an *irritable* system, in obedience to which they expand or contract at will. Among the *Anthozoa* are the Anemones; among the *Polyzoa* are the Madrepores, or Coral-builders, and many others. Many are microscopic, and belong to the class of animalcules called *Infusoria.*

A very remarkable quality which the Infusoria possess—one very useful for the aquarium, and one which would seem to settle their place in the *vegetable* kingdom is—that they *exhale oxygen* like plants. This has been proved by Liebig, who collected several jars of oxygen from tanks containing Infusoria only.

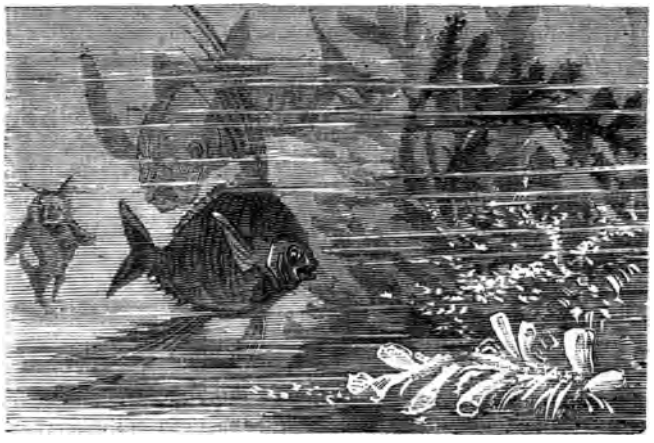
Coral.—A piece of Honeycomb Coral (*Eschara foliacea*) is easily found, and, when well selected and placed in the aquarium, may continue to grow there by the labours of its living infusorial tenants; they are not unworthy rivals of the Madrepores, or deep-sea coral builders of warmer latitudes. The walls of its cells are not more than one-thirtieth of an inch in thickness, and each cell has its occupant. So closely are they packed, that in an area of one-eighth of an inch square, the orifices of forty-five cells can be counted. As these are all double, this would give five thousand seven hundred and sixty cells to the square inch. Now, a moderate-sized specimen will afford with all its convolutions, at least one hundred square inches of wall, which would contain a population of five hundred and seventy-six thousand inhabitants,—a very large city.

Star-fishes.—Then we have that brilliant Radiate—type of his class—the Star-fish. A quiet, inoffensive creature, a great favourite in the aquarium, from the pretty contrast they make with marine plants and other objects.

Jelly-fishes, or Medusæ.—The perfect transparency, elegant form, and graceful navigation of the *Medusæ,* or Jelly-fishes, render them much admired in their native haunts, and prized for the aquarium. But they are very delicate. How beautiful and remarkable are these headless *Discophori,* as they float, and propel themselves with involutions of their disks, and gently-trailing tentacles, and the central peduncle hanging far below, like the clapper of a transparent bell! And yet these wonders are but so much

sea-water enclosed in so slight a tissue, that it withers in the sun, and leaves only a minute spot of dried-up gelatinous substance behind.

Fishes.—Finally come the Fishes, many of which are of similar genera to those recommended for the fresh-water tank. The Black Goby is familiar, tameable, but voracious; the Grey Mullet is very hardy, but also rather savage; the Wrasses are some of the most showy fish—and of these, the Ancient Wrasse (*Labrus maculatus*) covered with a network of vermilion meshes on a brown and white ground, is the most elegant.



(To be continued.)

THE WIND THROUGH THE KEYHOLE.

Hark! to the low wind sighing, so sad, so bleak, so cold,
It comes like the voice of a wailing ghost, full of misery untold.
It tells of endless sorrow, of fire and parting wreck,
And of the bare rope pressing round a choking creature's neck.

It comes from storm-swept raging seas, and from the wild morass;
From wandering round the ruined towers in many a dangerous pass.
From whistling against prison-bars, and over miles of snow,
Where the dying mother and her child crouch to the Cossack's blow.

From long forgotten battle-fields, where the grass grows coarse and rank;
From the yeasty breakers frothing against the shoal's sunk bank
From forests madly tossing before the shattering storm;
From moors where, on the gibbet, the body hangs still warm.

Come, children, then together, and pray for drowning men,
For suffering creatures floating faint on wreck far from our ken;
Pray for all human sorrow, for all who are suffering now,
By sword or storm, by sea or land, in this our world below,

SHIPWRECK AND CAPTIVITY OF CAPTAIN JOHN RILEY.

CHAPTER I.

A BRIEF ACCOUNT OF MY LIFE AND EDUCATION UP TO THE MONTH OF MAY 1815.



WAS born in the town of Middletown, in the State of Connnecticut, on the 27th of October, in the year 1777, during the war between England and America, which terminated in 1783, with the acknowledgment by the mother country of the freedom, sovereignty, and independence of the thirteen United States. My father, Asher Riley, who was bred to the farming business, at an early age was married to my mother, Rebecca Sage. I was their fourth child.

Owing to an attack of that dangerous disorder, the liver complaint, my father was rendered incapable of attending to his usual employment for several years, during which time his property, very small at first, was entirely expended. But after his recovery, in 1786, he was enabled, by industry and strict economy, to support his increasing family in a decent manner.

At the age of four years I was sent to a district school, where I continued, learning to spell and read, until I was eight years old, when my father's family had increased to seven or eight children, with a fair prospect of more. It subsequently amounted to thirteen in number.

Finding it difficult to support us all as he wished, and I having become a stout boy of my age, he placed me with a neighbouring farmer, to earn my living by assisting him in his work. From the age of eight to fourteen years I worked on the land with different farmers in our neighbourhood, who having received but a very scanty education themselves, had the conceit, nevertheless, to think they were overstocked with learning, as is generally the case with the most ignorant; and in this, their fancied wisdom, concluded that much less than they themselves possessed would answer my purpose, as I was but a poor boy.

Finding, therefore, that they would lose my labour during school hours they kept me from school, merely because, as they stated, they could not get along with their work without my help. They always took care to keep me fully employed in hard drudgery every moment I was out of school, scarcely allowing me the usual hours of refreshment and sleep.

When my parents remonstrated against such conduct in those who had come under a most solemn agreement to give me a *plenty of schooling*, they were assured "that I was a very forward boy;" that I could spell and read as well as any of the boys of my own age; that I could repeat whole chapters in the Bible by heart, and knew all the Catechism and Creed; that I could sing psalms as well as those who had learned to sing by note, "though indeed he cannot write (said they), because he has no turn for writing."

These representations tended, in some measure, to allay the anxiety of my parents, who wished me above all things to have a good common country education, as they at that time had no prospect of being able to give me anything better. They had taught me, both by precept and practice, that to be honest, industrious, and prudent; to govern my passions (which were violent), to feel for and relieve the distresses of others when in my power, to be mild and affable in my manners, and virtuous in all my actions, was to be happy; and they generally had instilled into my youthful mind every good principle.

I had now attained my fifteenth year; was tall, stout, and athletic for my age; and having become tired of hard work on the land, I concluded that the best way to get rid of it was to go to sea, and visit foreign countries.

My parents endeavoured to dissuade me from this project, and wished me to learn some mechanical trade; but finding that I could not fix my mind upon any other business, they, with great reluctance, consented to my choice.

I accordingly shipped on board a sloop, bound to the West Indies. Having no friend to push me forward, no dependence but on my own good conduct and exertions, and being ambitious to gain some distinction in the profession I had chosen, I contrived to acquire some knowledge in the art of navigation, theoretically as well as practically, and at the age of twenty years had passed through the grades of cabin boy, cook, ordinary seaman, seaman, second mate, and chief mate, on board different vessels.

I was now six feet and one inch in height, and proportionably strong and athletic, when finding the sphere I then moved in to be too limited for my views and wishes, extending only to the West Indies, I went to New York, where I was appointed to the command of a good vessel, and since that time have continued in similar employment, making voyages in all climates usually visited by American ships, traversing almost every sea, and travelling by land through many of the principal states and empires of the world.

For several years I had charge of the cargoes as well as of the vessels I sailed in; and had a fair share of prosperity until the month of January, 1808, when my ship, the Two Marys, of New York, was seized by the French, as I took shelter in Belle Isle, in the Bay of Biscay, from some English men of war, being bound for Nantz; and the ship, with her valuable cargo, was confiscated, under the memorable Milan decree of the 17th December, 1807, founded on the well known Orders in Council of the 11th of November of the same year.

I remained in France until the ship and cargo were condemned, and did not return to my native country and family till the latter part of the year 1809, with the loss, it is true, of nearly all the property I had before acquired, but wiser than I went out; for I had learned to read, write, and speak both the French and Spanish languages; had travelled pretty much all over France, where I had opportunities of witnessing many important

operations in the science of war; and I at the same time took lessons in the school of adversity, which tended to prepare and discipline my mind for the future hardships I was destined to undergo.

I now strove with all my power to stem the tide of misfortune, which began to set in against me with impetuous force. I had become a husband and the father of four children, who looked up to me for support, and I strained every nerve to retrieve my lost fortune, by trading to sea. But it was of no avail, every thing proved adverse, and after an absence of two years to Spain, Portugal, the Brazils, Rio de la Plata, the West Indies, New Orleans, &c., I returned home at the commencement of the war in 1812, penniless.

Unarmed commerce on the ocean, my element, was at an end in an honourable way, and I could not obtain a station I wished for in the navy, nor could I obtain the command of a private armed vessel that suited my views, owing to the want of friends. Nor would I accept the command of a vessel, and the consignment of a cargo navigated contrary to the laws of war under foreign licences. This I considered would derogate from the character I always wished to support, that of a true friend to my country, and a firm supporter of its laws and institutions, which I had proved by long experience in the ways of the world to be as good (at least) as those of any country under heaven.

Though the offers that were made me were great and tempting, so that my acceptance of them could scarcely have failed of producing me a handsome fortune, yet I remained at home during the whole war, making use of all my faculties to gain a decent subsistence for my family.

Soon after the burning of the Capitol and other public and private buildings at the seat of government by the enemy, in August 1814, when their commanders loudly threatened to destroy every assailable place on the seaboard, I believed the time was near when every arm would be required for the general defence, particularly at the exposed sea-port towns; and having enrolled myself in a volunteer company of military, exempt artillerists, composed chiefly of masters and mates of vessels, and seamen, I had the honour of being chosen their captain. But our services were not needed in the field.

CHAPTER II.

MY VOYAGE IN THE BRIG "COMMERCE" TO NEW ORLEANS.

After the close of the war, in April 1815, being then in my native State, I was employed as master and supercargo of the brig "Commerce," of Hartford, a vessel nearly new and well-fitted, of about 220 tons burthen.

A light cargo was taken on board, and I shipped a crew, consisting of the following persons, namely: George Williams, chief mate; Aaron R. Savage, second mate; William Porter, Archibald Robbins, Thomas Burns, and James Clark, seamen; Horace Savage, cabin boy, and Richard Delisle (a black man), cook. This man had been a servant, during the late war, to Captain Daniel Ketchum, of the 25th regiment of United States Infantry,

who distinguished himself by taking prisoner the English Major-General Rial, at the dreadful battle of Burlington Heights, in Upper Canada, and by several other heroic achievements.

With this crew I proceeded to sea from the mouth of the Connecticut river, on the 6th day of May, 1815, bound for New Orleans. We continued to steer for the Bahama Islands, as wind and weather permitted, until the 20th of the same month, when we saw the southernmost part of the island of Abaco, and passing the Hole in the Wall, on the 21st entered on the Grand Bahama Bank to the leeward of the northernmost Berri Islands; from thence, with a fair wind and good breeze, we steered W.S.W. twelve leagues; then S.S.W, about forty leagues, crossing the Bank in from three to four fathoms water.

On the morning of the 22nd, we saw the Orange Keys on our starboard beam; altered our course, and ran off the Bank, leaving them on our starboard hand, distant one league. The water on this Great Bank, in most places, appears as white as milk, owing to the white sand at the bottom gleaming through it, and is so clear that an object the size of a dollar, can be easily seen lying on the bottom in four fathoms water, in a still time.

Having got off the Bank, we steered W.S.W. for the Doubleheaded-Shot Bank, and at meridian found ourselves, by good observations, in the latitude of 24° 30′, being nearly that of Orange Keys. In the afternoon it became nearly calm, but a good breeze springing up, we continued our course all night W.S.W. I remained on deck myself, on a sharp look-out for the Doubleheaded-Shot Bank, or Keys, until 4 o'clock, A.M., when, judging by our distance, we must be far past them, and consequently clear of that danger, I ordered the chief mate, who had charge of the watch, to keep a good look-out on all sides for land, white water, and breakers; and after repeating the same to the crew, I went below to take a nap.

At about 5 (then fair daylight) I was awakened by a shock, and thought I felt the vessel touch bottom. I sprang on deck, put the helm to starboard, had all hands called in an instant, and saw breakers ahead and to southward close on board; apparently a sound on our right, and land to the northward at about two leagues' distance.

The vessel's head was towards the S.W. and she running at the rate of ten miles the hour. I instantly seized the helm, put it hard to port, ordered all sails to be let run, and the anchors cleared away. The vessel touched lightly three or four times; when I found she was over the reef, let go an anchor, which brought her up in two and a half fathoms or fifteen feet water, which was quite smooth. We now handed all the sails, and lowered down the boat. I went in her with four hands, and sounded out a passage; found plenty of water to leeward of the reef; returned and got under way, and at 7 o'clock, A.M., was in the open sea again, with a fresh breeze.

This being the first time, in the course of my navigating, that any vessel which I was in had struck the bottom unexpectedly, I own I was so much surprised and shocked, that my whole frame trembled, and I could scarcely believe that what had happened was really true, until by com-

paring the causes and effects of the currents of the Gulf Stream, I was convinced that during the light winds the day before, when in the Santarem Channel, the vessel had been drifted by the current that runs N.N.W., and at that time very strong, so very far north of the Doubleheaded-Shot Bank, that my course in the night, though the only proper one I could have steered, was such as kept the current on the larboard bow of the vessel, which had horsed her across it sixty miles out of her course in sixteen hours, and would have landed her on the S.W. part of the Carysford Reef, in two minutes more, where she must have been totally lost.

As so many vessels of all nations which navigate this stream have perished with their cargoes, and oftentimes their crews, I mention this incident to warn the navigator of the danger he is in when his vessel is acted upon by these currents, where no calculation can be depended upon, and where nothing but frequent castings of the lead, and a good look-out, can secure him from their too often fatal consequences.

Having settled this point in my own mind, I became tranquil, and we continued to run along the Florida Keys from W.S.W. to west by south, in from thirty to forty fathoms water, about four leagues distant, seeing from one to two leagues within us many rocks and little sandy islands, just above the water's edge, with a good depth of water all around them, until noon on the 24th, when we doubled the dry Tortugas Islands in ten fathoms; and on the 26th, arrived in the Mississippi River, passed Fort St. Philip at Pluquemines the same night, having shown my papers to the commanding officer of that post, as is customary.

My previous knowledge of the river, and the manner of getting 'up it, enabled me to pass nearly 100 sail of vessels that were in before me, and by dint of great and continued exertions, to arrive with my vessel before the city of New Orleans, on the 1st day of June. Here we discharged our cargo, and took another on board of tobacco and flour, principally on freight. The two ordinary seamen, Francis Bliss and James Carrington, now wished for a discharge and received it.

I then shipped in their stead John Hogan and James Barrett, both seamen, and natives of Massachusetts.

With this crew and cargo we sailed from New Orleans on the 24th of June, left the river on the 26th, and proceeded for Gibraltar, where we arrived on the 9th of August, and landed our cargo. About the 13th, the schooner "Polly," Captain Price, of and from New York, in a short passage, came into the bay; and the captain on his landing told me he was bound up to Barcelona, and that if I would go on board his vessel, which was then standing off and on in the bay, he would give me a late New York Price Current, and some newspapers. I was in great want of a Price Current for my guide in making purchases, and accordingly went on board.

The wind blowing strong in, and the vessel far out, I had to take four seamen with me. Having received the Price Current, &c., I left the schooner about sunset, when they immediately filled her sails and stood on.

As we were busied in shipping the boat's mast to sail back a toppling sea

struck her, and nearly filled her with water; we all jumped instantly overboard in the hope of preventing her from filling, but she filled immediately. Providentially the captain of the schooner heard me halloo, though at least a mile from us; put his vessel about, came near us, sent his boat, and saved our lives and our boat, which being cleared of water, and it being after dark, we returned safe alongside of the brig by 10 o'clock at night.

When the boat filled, we were more than three miles from the Rock, in the Gut, where the current would have set us into the Mediterranean, and we must have inevitably perished before morning, but we were spared, in order to suffer a severer doom, and miseries worse than death, on the barbarous shores of Africa.

We now took on board part of the cargo of brandies and wines, and some dollars, say about two thousand; and an old man named Antonio Michel, a native of New Orleans, who had previously been wrecked on the island of Teneriffe, and was recommended to my charity by the American consul at Gibraltar.

CHAPTER III.

VOYAGE FROM GIBRALTAR TOWARDS THE CAPE DE VERD ISLANDS, AND SHIPWRECK ON THE COAST OF AFRICA.

We set sail from the Bay of Gibraltar on the 23rd of August, 1815, intending to go by way of the Cape de Verd Islands, to complete the loading of the vessel with salt. We passed Cape Spartel on the morning of the 24th, giving it a berth of from ten to twelve leagues, and steered off to the W.S.W. I intended to make the Canary Islands, and pass between Teneriffe and Palma, having a fair wind; but it being very thick and foggy weather, though we got two observations at noon, neither could be much depended upon.

On account of the fog we saw no land, and found, by good meridian altitudes on the 28th, that we were in the latitude of 27·30 N., having differed our latitude by the force of the current, 120 miles: thus passing the Canaries without seeing any of them. I concluded we must have passed through the intended passage without discovering the land on either side, particularly as it was in the night, which was very dark, and black as pitch; nor could I believe otherwise, from having had a fair wind all the way, and having steered our course ever since we took our departure from Cape Spartel. Soon after we got an observation, on the 28th, it became as thick as ever, and the darkness seemed (if possible) to increase.

Towards evening I got up my reckoning, and examined it all over to be sure that I had committed no error, and caused the mates to do the same with theirs. Having thus ascertained that I was correct in calculation, I altered our course to S.W., which ought to have carried us nearly on the course I wished to steer, that is, for the easternmost of the Cape de Verds. But finding the weather becoming more foggy towards night, it being so thick that we could scarcely see the end of the jib-boom, I rounded the

vessel to, and sounded with 120 fathoms of line, but found no bottom, and continued on our course, still reflecting on what should be the cause of our not seeing land, as I had never passed near the Canaries before without seeing them, even in thick weather, or in the night.

I came to a determination to haul off to the N.W. by the wind, at 10 P.M., as I should then be, by the log, only thirty miles north of Cape Bajador.

I concluded on this at nine, and thought my fears had never before so much prevailed over my judgment and my reckoning.

I ordered the light sails to be handed, and the steering-sail booms to be rigged in snug, which was done as fast as it could be by one watch, under the immediate direction of Mr. Savage, second mate.

We had just got the men stationed at the braces for hauling off, as the man at the helm cried "ten o'clock." Our try-sail boom was on the starboard side, but ready for jibbing; the helm was put to port, dreaming of no danger near.

I had been on deck all the evening myself; the vessel was running at the rate of nine or ten knots, with a very strong breeze and high sea, when the main boom was jibed over, and I at that instant heard a roaring; the yards were braced up—all hands were called.

I imagined, at first, it was a squall, and was near ordering the sails to be lowered down: but I then discovered breakers foaming at a most dreadful rate under our lee. Hope for a moment flattered me that we could fetch off still, as there were no breakers in view a-head, the anchors were made ready: but these hopes vanished in an instant, as the vessel was carried by a current and a sea directly towards the breakers, and she struck!

We let go the best bower anchor; all sails were taken in as fast as possible; surge after surge came thundering on, and drove her, in spite of anchors, partly with her head on shore. She struck with such violence as to start every man from the deck.

Knowing that there was no possibility of saving her, and that she must very soon bilge and fill with water, I ordered all the provisions we could get at to be brought on deck, in hopes of saving some, and as much water to be drawn from the large casks as possible. We started several quarter casks of wine, and filled them with water. Every man worked as if his life depended on his present exertions;—all were obedient to every order I gave, and seemed perfectly calm.

The vessel was stout and high, as she was only in ballast trim; the sea combed over her stern and swept her decks; but we managed to get the small boat in on deck, to sling her, and keep her from staving. We cut away the bulwark on the larboard side, so as to prevent the boats from staving, when we should get them out: cleared away the long boat, and hung her in tackles, the vessel continuing to strike very heavy, and filling fast. We had, however, secured five or six barrels of water, and as many of wine;—three barrels of bread, and three or four of salted provisions. I had, as yet, been so busily employed that no pains had been taken to ascertain what distance we were from the land, nor had any of us yet seen

it; and in the meantime all the clothing, chests, trunks, &c., were got up, and the books, charts, and sea-instruments, were stowed in them, in the hope of their being useful to us in future.

The vessel being now nearly full of water, the surf making a fair breach over her, and fearing she would go to pieces, I prepared a rope, and put it in the small boat, having got a glimpse of the shore at no great distance, and taking Porter with me, we were lowered down on the larboard, or lee side of the vessel, where she broke the violence of the sea and made it comparatively smooth; we shoved off, but on clearing away from the bow of the vessel the boat was overwhelmed with a surf, and we were plunged into the foaming surges.

We were driven along by the current, aided by the undertow (or recoil of the sea), to the distance of 300 yards to the westward, covered nearly all the time by the billows, which following each other in quick succession, scarcely gave us time to catch a breath before we were again literally swallowed by them, till at length we were thrown, together with our boat, upon a sandy beach.

After taking breath a little, and ridding our stomachs of the salt water that had forced its way into them, my first care was to turn the water out of the boat, and haul her up out of the reach of the surf. We found the rope that was made fast to her still remaining: this we carried up along the beach, directly to leeward of the wreck, where we fastened it to sticks about the thickness of handspikes, that had drifted on the shore from the vessel, and which we drove into the sand by the help of other pieces of wood.

Before leaving the vessel I had directed that all the chests, trunks, and everything that would float, should be hove overboard, this all hands were busied in doing. The vessel lay about 100 fathoms from the beach at high tide. In order to save the crew, a hawser was made fast to the rope we had on shore, one end of which we hauled to us, and made it fast to a number of sticks we had driven into the sand for the purpose. It was then tanted on board the wreck, and made fast.

This being done, the long boat, in order to save the provisions already in her, was lowered down, and two hands steadied her by ropes fastened to the rings in her stem and stern posts over the hawser, so as to slide, keeping her bow to the surf. In this manner they reached the beach, carried on the top of a heavy wave. The boat was stove by the violence of the shock against the beach; but by great exertions we saved the three barrels of bread in her before they were much damaged; and two barrels of salted provisions were also saved.

We were now, four of us, on shore, and busied in picking up the clothing and other things which drifted from the vessel, and carrying them up out of the surf. It was by this time daylight and high water; the vessel careened deep off shore, and I made signs to have the masts cut away, in the hope of easing her, that she might not go to pieces. They were, accordingly, cut away, and fell on her starboard side, making a better lee

for a boat alongside the wreck, as they projected considerably beyond her bows.

The masts and rigging having gone, the sea breaking very high over the wreck, and nothing left to hold on by, the mates and six men still on board, though secured as well as they could be, on the bowsprit and in the larboard fore-channels, were yet in imminent danger of being washed off by every surge. The long-boat was stove, and it being impossible for the small one to live, my great object was now to save the lives of the crew by means of the hawser. I therefore made signs to them to come, one by one, on the hawser, which had been stretched taut for that purpose. John Hogan ventured first, and having pulled off his jacket, took to the hawser, and made for the shore. When he had got clear of the immediate lee of the wreck, every surf buried him, coming many feet above his head, but he still held fast by the rope, with a deathlike grasp, and as soon as the surf was passed proceeded on towards the shore, until another surf more powerful than the former unclenched his hands and threw him within our reach, when we laid hold of him and dragged him to the beach. We then rolled him on the sand, until he discharged the salt water from his stomach, and revived. I kept in the water up to my chin, steadying myself by the hawser, while the surf passed over me, to cast it to the others as they approached, and thus, with the assistance of those already on shore, was enabled to save all the rest from a watery grave.

(*To be continued.*)

BEN'S BEAVER.

A PIONEER settler in the woods of Canada has need to be a man of brave heart and strong hand. We had been five years on our Canadian farm, and we had "a frame house" as fairly fitted for two families as two flats in Paris one above the other, or two dwellings joining in a semi-detached villa. My eldest brother had the wife of his choice and two fine boys. We had thirty acres in corn, grass, fruit, and kitchen garden. This conquest of the woods made the two brothers next to the eldest very uneasy. They wanted a world to conquer, and I remember when Walter, the eldest, now eighteen, said to my father, "Give Ben and me ten shillings each to buy axes, and we will never ask any more of you. We will give you a receipt in full for our inheritance."

"And may well do so, if you have your health and can fetch your food from home for a while," said my mother.

The result was, that the two boys started, each with an axe and a knapsack, for a place called "Thug's Hollow," ten miles into the dense forest east of our home. The tract of land, comprising a fine waterfall, had been bought by a man named Sugge, and he intended that his claim should bear his own name; but he lisped, and called himself Thugge, and other folks alled him what he called himself, and hence the ugly name was fastened

on a very lovely valley which is now a beautiful and prosperous village, long ago emancipated from forest trees, beavers, blackened stumps, and its bad name.

On the mill-stream, where now stand the mills of my victorious brothers, Ben's beaver was caught in a box-trap. He was a baby beaver, or he might have known better than to intrude into the small room that became his prison for the bribe of a sweet-apple. The colony of beavers that had built near where the corn-mill now stands had been fastened out of their house, and all shot, by my brothers, while they were trying to get in at their own doors. It was a cruel and profitable job, for beaver skins then brought a very high price. Not one was left alive except baby Brownie, who was given to Ben by reason of his great love of four-footed pets. I went over to see the beavers' house, built of small trees, or saplings, which they cut down with their chisel-like front teeth, and floated into position in the water. The dam, as well formed as if men had built it, the warm dry rooms of the dwelling with their soft lining, the treasures of bark and bulbous roots for food in winter, all were wonderful to me. The boys had watched them at work for some days before they commenced destroying them. They had seen them cut down saplings to repair damage purposely done to their dam. They had floated these to the place where they were wanted, and then, lifting the stick upon the fore-leg, as a man takes a burden on his arm, they had put it in its place, very much after the manner of a monkey. Many have said that the beaver carries burdens on his tail, and that he uses it as a trowel. My brothers were not able to verify these assertions. They were of opinion that though the tail may be used sometimes to brace the animal, like a fifth leg, or to hammer their work into place, yet that it is not used as a trowel or a raft. Perhaps the time they allowed themselves for observation was too short.

I took notes of Brownie for a long time, and he soon grew to be a big beaver and very tame. He was one of the most cheerful and affectionate pets in the world, and, though he ate bark and bulbous roots readily, his favourite food was bread and milk; if it was sweetened it was a special and delightful treat.

One of our neighbours was remarkably fortunate in finding horses that had gone astray. On being asked the secret of his sagacity and luck, he said: "I always fancy myself a horse, and think of what I would want if I was one, and where I would go to get it." If I could fancy myself a beaver, I might hope to explain some of the singular doings of Ben's. He loved my brother so dearly, that Alice (my brother's wife) was almost jealous of him. It was impossible for Ben to separate or hide from him. On one occasion Ben left home to go to Plattsburg and Whitehall, on Lake Champlain. This lake is nearly one hundred miles long, and has many steamboat landings on both sides; being at its widest not above six miles across. The beaver was left at home, but when Ben went up to his room at the St. Alban's Hotel, he was met by Brownie, who showed no signs of fatigue, and indulged in the most extravagant expressions of joy. Ben

rewarded his attention with a dish of bread and milk, of which he ate about one half, and then laid himself to sleep on his master's valise. He changed to his master's feet when my brother was in bed. In the morning Ben missed him, and the remaining portion of the bread and milk. "Brownie has gone home," said Ben to himself. That night he staid at Plattsburg, on the other side of the lake; when he retired to his room, after taking supper in the ordinary dining-room, there he found Brownie on his valise again. Again theirs was a joyful meeting, and an eager consumption of bread and milk and sweet-apples. This time there was none left for breakfast. Still Brownie disappeared early, and not until Ben reached Whitehall was he again visible. It is to be noted that in all the distance travelled by this beaver, from our home, there was water. Brooks and a small river took him to St. Alban's, and after that he had the lake. The beaver is a poor traveller on land, and does better by night than by day. Much of the work of beaver colonies is done in the night. But Brownie followed his master by day, and made the same speed as the boat, and always knew where to land. The animal has powerful means of water locomotion in the hind feet: his tail he uses as a rudder.

Who or what told Brownie that Ben was to land at Whitehall I cannot know, but there he was, ready to pay his ardent respects to his master's pocket for the sake of a sweet-apple.

My sister Alice had hoped when she married Ben to reform him of his passion for four-footed pets by furnishing substitutes; but he went on the principle of "the more angels in the heart the more room," only he read babies and beavers instead of celestial beings. I remember Mrs. Ben's rueful expression of face as she exclaimed, "Oh dear! Brownie is a nuisance. He has built a dam in the parlour, of the fire-irons and fender and a music-stool. He has made a double-roomed house at the back of it with two ottomans, and lined them with the leaves of my last music-book. And then he has stolen my dried sweet-apples, and laid them up for his winter's provision. But he is welcome to them now, for who would eat them after he has messed them over! Indeed, Ben, he *is* a nuisance."

"We are all nuisances sometimes," said Ben, "beavers, babies, and grown up men and women."

"I wish you would speak for yourself and Brownie, and not for me and the babies, Ben," said Alice, laughing.

"Look at him!" said my brother, as Brownie combed himself with the claws of his hind foot, making his toilet as carefully as a cat or a lady. We all did look at him, and we all forgave his mischief, and admired his neatness, sagacity, and affection. All the world forgives the pets and favourites when they serve or amuse sufficiently to pay their way.

The end of poor Brownie was tragic, and no settler in Canada has been more sincerely mourned. To this day a tender sadness fills my heart when I think of him. He was mistaken by a hunter for a wild beaver, when the hunter was on an excursion with my brother in the backwoods. He was shot. Ben got his skin and had it stuffed, and to this day it is kept as a parlour ornament in my brother's Canadian house.

THE WONDERS OF THE INSECT WORLD.

A TRAGEDY AMID THE ROSES.

BY H. S. BERTHOUD.

I HAVE passed many happy days in that little garden. I say *garden*, because I know of no other word that would describe the place—a kind of uncultivated meadow, partly hedged in, and partly protected by ruinous walls on the opposite side. In the middle grew some fruit trees, once carefully cultivated, but for many years neglected and left to grow wild. Their branches had shot up to a fabulous height, spreading out like umbrellas in most grotesque fashion, while others bent down to the ground as if to invite the embraces of the climbing plants which twined round their trunks and hung upon them in festoons and garlands. The weeds had invaded not only the flower-beds, but the gravelled paths also. As may be supposed, these vigorous parasites had stifled the cultivated plants that formerly flourished there. Seldom if ever have I seen, even in the open country, such thriving nettles and prosperous thistles. Brambles, too, spread in every direction, to the great damage of one's face, hands, and clothes: a scratch or a tear accompanied every step.

The proprietor of this garden, an old man of seventy, tall, thin, and grey, dwelt in one corner of this enclosure, in a hut worthy of Robinson Crusoe. It was thatched, and its one room was badly shut in by a rotten door, and poorly warmed by a fire in a wide, open chimney, down which the smoke rushed, to the great discomfort of eyes and lungs. Daylight struggled for admission through a window covered with paper in lieu of glass. Some blackened shelves, festooned with cobwebs, held a few books; a valuable microscope covered with a glass shade, a butterfly-net, three china plates, two drinking-glasses, and two rusty tinned covers, formed the chief furniture of this apartment. Here the old man lived quite alone, winter and summer, with no better company than a snarling dog, and with no servant except an old woman of the adjacent village, who was obliged to tramp a league or more to bring the hermit a supply of food and other necessaries, and cook for him.

I became acquainted with this singular person by accident. During one of my entomological rambles we both discovered at the same moment a very rare insect, and at first it seemed likely that we should dispute each other's right to it with the acrimony peculiar to collectors. But as soon as I saw that I had to contend with an old man I paid him the deference and respect due to his years, and resigned my capture to him with a good grace. He appreciated the sacrifice, and after a quarter of an hour's conversation he invited me into his garden, to which I was ever afterwards a welcome visitor.

For five years I enjoyed an intimate friendship with this man, who evidently concealed himself under a fictitious common name. In his

manner of speaking, in his profoundly expressive glance, and in the refinement of his manners, the man of the world was apparent, although disguised by blouse and hob-nailed shoes. His knowledge was immense; everything seemed familiar to him. I have passed whole days listening to his theories of creation and its sublime wonders. I fancied that some great wrong had driven this amiable man into solitude.

His favourite study was the insect world. No one knew better than he how to place himself so as not to disturb the creatures whose habits and instincts he wished to study. Time and fatigue were unheeded. His bright blue eye, in which so much intelligence lurked, would follow every movement of the insect or bird he was studying. Holding his breath for fear of disturbing them, and the better to watch them, he would lie prone on the earth with the silence and tact of a savage, never permitting himself to become discouraged or wearied.

I remember one morning, upon opening the gate of his garden, finding him lying on the grass quite motionless. Raising his head, he made me a sign to lie down beside him.

"Look," said he, "look at that creature; it is making its nest between the two rose-bushes."

I looked, and at a few paces distant saw a mason-bee, of about six lines in length, black in the upper portion of its body, yellow beneath, and covered with a thick down. Resting on the ground, it struck the soil with its fore feet, examined it with its antennæ, then walked up and down like a surveyor about to take his bearings. It seemed in no hurry to make its selection, for it examined in this manner nearly a square yard of ground. At last it stopped in a slight depression in a large lump of clay lying in the middle of the path, exposed to broad day, but sheltered from the rain by two rose-bushes. The soil was very compact and solid, but free from moisture: it consisted of a mass of clay almost as hard as stone.



THE MASON-BEE.

Supporting itself on its fore feet, the bee-like creature began to describe a complete circle, making use of the extremity of its abdomen as the point of a compass. The circle traced, it proceeded to remove from it with its feet every particle of sand, then stopped a few seconds to consider, and afterwards commenced to dig. Its triangular mandibles, strong and finely-toothed on the inside, penetrated the soil, not in the manner of a pick-axe, but like a saw. It divided the clay into little slices, which it took between its fore feet and threw out; and if any fragment fell too near, it removed it further off with its hind feet.

Little by little it hollowed out a well of about five lines in diameter, perfectly cylindrical, and at least two inches in depth. From time to time

it stopped, evidently breathless and fatigued, for it raised its wings so as to admit the air more freely to the open stigmata on its flanks, through which the respiration of insects is effected. At last the well was finished. Cautiously bending over it, we saw the little creature shaping the bottom like a thimble, rounding it, smoothing it, polishing it, and brushing it with the downy hairs of its abdomen, making it as hard and as brilliant as marble by employing its abdomen as a burnisher. We could see the reflection of its body on the sides of the well as in a metallic mirror. The hand of the most skilful workman would have vainly attempted such perfection.

Its task finished, it stopped, and for a long time continued to agitate its gauze wings, so as to bring an abundance of cool air to its stigmata; then it minutely inspected its work, and appeared satisfied with it. Then flying towards a corner of the garden where a bed of thyme blossomed, it passed gaily from flower to flower, and recruited itself with a good meal of honey. It then returned to the nest it had dug, and proceeded to take the measure of its aperture, by employing its antennæ as compasses, and turning them round as with the legs of that mathematical instrument. Then stopping for a few seconds, it appeared to be impressing on its memory the calculations it had made. Its attitude was plainly meditative. From time to time it rubbed its shining forehead with the extremity of one of its fore feet just as a geometrical professor would scratch his head.

As soon as it had made up its mind what to do, it flew up to a great height, hovered about a few moments, and then settled upon a briar. Selecting a large perfect leaf, it placed itself beneath it, and attacked its border with its cutting mandibles as with a gardener's shears, and notched it like the blade of a saw. Proceeding from the border it gradually reached the central nerve, and then returned again to the border, cutting and sawing continually. When the cut portion was about to fall off, it held it between its feet, which fulfilled the office of a bench. Then it turned the piece, cut it, shaped it round as completely as if it had a pattern to work by. Then it took it in its mouth, and carried it to the nest, and covered the bottom of it with marvellous accuracy. It fixed this carpet by means of some pegs cut out of the same leaf; then it commenced taking other measurements, and to shape other leaves into different forms, which it united one to the other by extremely accurate mortices, forming at last an elegant tent in the inside of its nest, cool and solid. A Chinese puzzle could not have presented more varied and difficult problems than this little insect had solved.

The mason-bee now took rest for the third time, placed a piece of dried leaf over its work, so as to conceal the opening, and then went to supply itself from the thyme-bed. Every minute it returned loaded with honey and wax, until it had filled its nest, discharging the honey into the cells it promptly constructed with the wax.

It then inclined its abdomen over the nest, the result of so much ingenious labour, laid an egg in each cell, spread a layer of wax over the opening and

covered it with dust, carefully placing each grain, and did it so well with its little feet, that it became impossible to distinguish the least sign of the mysterious cavity.



But during all the time the mason-bee had been so intent upon its work, an enemy had watched every movement with its bright yellow eyes. Descending from its habitation, suspended from tall and strong ears of wheat which had sprung up amid the weeds, a harvest-mouse, no bigger than a grasshopper, concealed itself amid the thick grass. Before quitting its aërial dwelling, as is the nest of the harvest mouse, oval in shape, and artistically woven with fine straw and hay, the mouse had by long and careful watching, satisfied itself that it ran no danger. As we lay motionless on the grass, it took courage and slid down a wheat stalk, just as a sailor boy would slide down a rope, and adroitly intruded itself, without so much as rustling a leaf or disturbing a blade of grass, to within a distance of about two feet from the spot where the mason-bee was at work.

There it lay in ambush beneath a tuft of violets, concealed under its large leaves.

As soon as the mouse saw the bee fly away, after having closed its nest filled with honey, it began with its forefeet to break the crust of wax that covered it. Unluckily for him, the bee had alighted on a neighbouring rose-bush, from whence it took a farewell glance at the place where it had deposited the

hope of its race. Upon seeing the mouse ruthlessly destroying the result of so much care and toil, and about to devour its eggs, it flew towards the aggressor and began, like an eagle, to describe circles around it, gradually growing narrower. The mouse, upon hearing the humming of the bee, stopped its work of destruction, trembled, and tried to flee. It was too late!

The bee, drawing its magnetic circles closer and closer, held the mouse fascinated by fear. The mouse, who already felt over its head the rustling of the wings, whose sinister noise terrified and paralysed it, made a great effort to recover itself: scratching the soil with its paws, it endeavoured to raise a cloud of dust through which it might escape, or at least keep at bay the bee, which has such a horror of dirt. Alas! the solid clay resisted the attack of its feeble paws.

The bee rushed upon the delinquent and stung it on the neck, leaving its sting in the wound: then repairing the damage done to its nest, it flew a short distance and fell dead. What did it signify! since it had fulfilled its mission by securing the means of reproducing its species, that it had saved its eggs from destruction by the sacrifice of its life!

The little mouse, wounded by the venomous dart, rolled upon the ground, writhing in pain, and in trying to regain its dwelling, fell near the nest of the bee which it had sought to destroy. Its movements betrayed the most intense suffering; its eyes were bloodshot; its little mouth opened convulsively without a sound escaping from it: it beat the ground with its feet, and rolled over and over again in the strangest manner imaginable. Meanwhile, a swelling rapidly invaded its neck and shoulders: its delirium increased,—it could no longer stand on its feet: falling on its side in strong convulsions, it dropped its head and expired.



While I watched the last scene of this tragedy, my old friend had started up, and running to his hut, quickly returned with a bottle of hartshorn in his hand. Misanthrope as he appeared, he could not even see a mouse suffer without thinking of helping it. Alas! the help came too late. Almost overcome, the good man picked up the mouse, turned it over in his hand, and regarded for a few moments its pretty little drooping head; its eyes, which, no longer flashing sparks, were dim and half-covered by their lids; and its pretty golden fur, soiled with blood and earth—then sighing, he let it fall to the ground.

At a few paces distant, he found the bee struggling in the agonies of death: it also died of its sting!

"Let us bury them in one grave," said I, laughing.

"Why should we take that trouble?" he replied. "Do you suppose that God who has created death, and made it a law of nature, has not created the grave-diggers also? You have witnessed the first acts of the tragedy: the two principal actors are dead; insignificant ones, it may be said, but

two fine deaths: one, a mother who sacrificed her life for the safety of her progeny: the other, a brigand, who expiated his pillage and crimes by a painful end. Wait the last scene, it will be very grand, I assure you. Hark! I hear the orchestra preluding the finale."

I listened, and could just distinguish a murmuring sound: at first vague and indistinct, it became every moment louder and stronger.

"Sit down here on this balmy, odorous haycock," said my singular friend, "the performance is now going to commence." As the noise drew nearer, it assumed a harsher character. A band, composed of several large insects, descended from the air above and flew round and round the corpse of the mouse. I then discovered that the *elytra* or wing-sheaths of these insects, rising against each other, so as to allow of my seeing only their yellow under-sides, produced this strange music, by rubbing against each other, like a bow upon the strings of a violin; the wings, long and light, struck the air vigorously, and rising and falling suddenly, produced the bass of this singular treble.

When the insects discovered the corpse of the mouse, they alighted on the ground. First they carefully folded up their wings under the cases of their *elytra*, cut in the shape of a black escutcheon, striped with two large orange bands, resembling the heraldic paintings on funeral banners. Scarcely had they concluded these first arrangements when they began marching in procession around the corpse; at intervals they stopped, turned towards it, and appeared to salute it, touching it with their large antennæ ending in short clubs, and which might have really been taken for sprinkling brushes.

This slow and solemn march concluded, they gathered together in consultation, and with the aid of these same antennæ, commenced one of those animated conversations with each other, peculiar to insects, which I can never behold without admiration. While they were deliberating, a large blue-bottle came buzzing about, and alighted on the corpse of the mouse with the intention of depositing its eggs in the body of the unfortunate creature, but one of the insects flew upon it, and before it had time to escape, sacrificed it to the manes of the little quadruped. This sacrifice performed, it quietly rejoined its comrades, and again took its part in the peaceable discussion.

A fresh promenade around the corpse followed the holding of this council, and permitted me to discover that the insects, seven in number, were *necrophores* (body snatchers) of the species *Vespilio*. They marched slowly, moving, with a kind of solemnity, their six large feet, of which the four hind ones, a little twisted, proclaimed great vigour. Their aspect took a lugubrious expression from the form of their large heads, bending towards the ground, inserted in a black, hairy, and strongly curved corslet, surmounted above the eyes, by two short antennæ, the head terminated by projecting mandibles, in a state of constant motion, as though they murmured fatidical words. Finally, a rank odour of musk, strong enough to reach our noses, exhaled from their bodies, reminding us of the emanations

exhaled by bodies in a state of decomposition. Innumerable parasites covered most of these necrophores, swarming upon their bodies, heads, and along their legs, giving them a repugnant aspect.

As large as grains of sand, of a livid and transparent yellow colour, by the aid of their two forefeet, armed with hooked claws, strongly curved, and terminating in sharp points, these parasites ran to and fro upon the limbs of the necrophores, like sailors upon the rigging of a ship. Scarcely had the necrophores climbed up the mouse, to recommence their promenade, than all these little monsters, which I recognised as the gamasus of the coleoptera, put their feet to the ground, and disappeared under the bushy hair of the mouse. The gamasus makes use of carnivorous insects as a means of conveyance. The latter serve them as vehicles and purveyors: as soon as they have found a prey, the singular creatures they carry quit them, taking a share of the spoil, first setting up a right of prelibation, except to ride again upon the hunters, when they are filled with food.

The necrophores, relieved of these cavaliers, recommenced an animated conversation upon the mouse, after which they regained the earth, disappeared under the body, and carried it about ten paces away, into a more porous and less solid piece of ground. This journey occupied them scarcely a minute. The body seemed to move of itself, for none of the insects concealed under it, and which conveyed it, were visible. I never saw anything so singular as this journey of a dead body.

Arrived at the goal, they arranged themselves in a circle around their burden, one only excepted, which mounted the body of the mouse, and from thence appeared to give orders to its companions. The latter, with their heads buried in the body, which they lifted and moved either forwards or backwards, with the aid of their powerful corslets, scratched the ground with their fore feet, and soon traced the outline of a large furrow. With their hind feet, those curved feet which I have already spoken of, they threw out the soil. The furrow completed, they moved the body a little, and hollowed out a hole, and in less than an hour the mouse reposed in its grave, which extended six or seven lines beyond its body.

The necrophores then covered the body with earth, levelling it, and consolidating it with some little stones, rendering it as imperceptible to the eye as the neighbouring nest of the bee. The gamasus remounted the necrophores, upon their casting the first pellets of earth upon the corpse. As soon as the grave was finished, the necrophores, without taking any notice of these importunate cavaliers, commenced a real orgie, which I should be greatly embarrassed to relate in all its details. The entire troop finished by taking flight, and disappearing in the air.

I rose, and felt disposed to disinter the mouse, to study more closely the work of inhumation performed by the winged grave-diggers. "Do not do that," said the old man. "Do not destroy what the poor insects have accomplished at the cost of so much labour. Do not cause them to despair when they return to-morrow to deposit their fertilized eggs in the body they have buried. These eggs, after a few days' incubation, favoured by the liberation

of the gases produced by a body in a state of decomposition, will become spindle-shaped larvæ. Over each ring of their bodies, which is eighteen lines in length, they have orange-coloured rays, similar to those of the paternal livery. They are armed with four sharp hooks, which serve to attach them to the back of their prey, these rudiments of insects which nourish themselves upon that part of the animal in which they are born. After devouring everything, sparing not even the bones, the larvæ spin a silky cocoon, pliant, and admirably worked; then they become nymphæ, and soon afterwards are transformed into necrophores. Then, guided by a sure instinct, the young insects will march straight to the little opening made by the mother at the time of laying her eggs, break the slight coating of earth that closes it, and fly away to other places, to recommence the marvels we have just witnessed. They also will be covered with gamasus, which are born at the same time, and which employ them as vehicles."

Some time afterwards I found the bee's nest and the little grave both broken up; bees and necrophores had all disappeared. Other creatures now occupied the ground, partly levelled and refreshed by rain. Some ants were busy picking the bones of the mouse, the flesh of which had decayed, and returned to dust; a tuft of grass had sprung up, high and strong enough for a garden spider to weave its web in; a great earth-worm thrust out half its filiform body from these open catacombs, and cooled itself in the moisture that covered the ground; and some caterpillars were gnawing the leaves of a mallow which had rooted itself in this spot. Nature, in retaking possession of this corner of the earth, had entirely changed its aspect and uses.

The old man seemed more gloomy and depressed that day than usual. I called his attention to the revolutions that had taken place between the two rose-bushes, but he bestowed only a vacant look on the spot—his thoughts were evidently elsewhere.

I never saw him again alive.

After a journey of several months' duration in a foreign land, I hastened immediately upon my return to betake myself to the old man's retreat.

It was winter: a piercing north wind blew in my face; snow covered the ground, and placed a powdered peruke on the head of each bald-pated tree: the frost had hardened the rugged soil. After much difficulty I opened the garden gate, against the bottom of which the frozen mud formed an obstacle. To my great astonishment, no smoke ascended from the chimney, nor even from the door of the hut. No sound was audible except the screaming of the famished birds seeking food beneath the snow. There was no one in the hut. Unusual signs of disorder, even for this usually neglected spot, convinced me that the place had been for some time unoccupied.

I hastened to the neighbouring village, to make inquiries of the old woman who usually waited upon my friend. She knew no more than I did.

The other day I paid another visit to my old friend's garden, and found that it now forms part of a large farm, exceedingly well cultivated, the

proprietor of which had bought the ground from the Crown; the old man having died intestate, and no heirs coming forward to claim his property.



THE IDLE BOY.

"YOU are not learning your lesson, Isaac; you have been here more than an hour, and have not once looked on your book. You will make me scold you; and that will grieve me very much."

This motherly speech was addressed by a pretty fair-haired girl, of eight years, to a boy of twelve, who, with his elbows on a table, before an open book, kept his eyes steadily fixed upon the floor.

"Do you not see what I am looking at, Grace? It is so pretty, so curious!"

"See what?" said the giddy little thing. "I cannot see anything." Then parting the curls that covered her face like a veil, she looked in the same direction as the idle scholar.

"Oh yes! yes!" she exclaimed, clapping her little hands. "I see it; those blue, yellow, and red spots, dancing on the floor."

Isaac nodded his head.

"A rainbow on the ground," said he.

He rose from the table, closed his book, and looked at the window through which the sunbeams entered, flooding the table with light, and making everything upon it shine resplendent. There were a sheet of white paper, some pens, a portfolio, a pearl-handled penknife, and a large glass of water, containing some violets. The boy took a sheet of paper, and held it before the sunbeam; then the dancing colours disappeared. Removing the obstruction they reappeared. He then held the knife handle in the sun-

beam, and it became iridescent with rose, blue, gold, and green hues. But these reflexions, although similar to the dancing colours, were very inferior to them.

The fair-haired girl, who attentively watched the boy's movements, which he called *his experiments*, at length became impatient.

"What," said she, "are you bothering yourself about? Why, it's the sun that makes that, I am quite sure."

"Yes! *but how?* and why? and through what?" said the boy, with grave face and thoughtful brow, apparently putting these questions to himself rather than replying to his playfellow.

"As you will not study your lesson," said she, "come and play in the garden." And she shook the table so violently that some of the water in the tumbler was spilled upon it.

When the girl reached the door she turned her head to see if Isaac was coming, but he had not moved a step; he stood watching, with observing eye, the miniature rainbow that danced on the floor.

Grace went behind him on tip-toe; Isaac pointed his finger to the still trembling water in the glass.

"Ah!" she cried, "it is the violets."

"Perhaps it is, perhaps it is not," replied the young experimentalist. "We will soon see."

Emptying the glass, he replaced it on the table. A pale and colourless reflexion of the dancing colours was barely visible on the floor.

"It was the water and the glass together," said he. "The sun's rays passing through both made the rainbow."

"But there's no glass in the sky," objected the little girl.

"But there's air, which retains the water in suspension for a time, as clouds, before it falls in rain. If we could make the water hold together without putting it into a glass"

"That is impossible."

"I'll find a way."

The boy went to a cupboard, and brought out a large china plate, and set it in the centre of the table in the sunshine, and then poured some water into it. Every drop of the little cascade sparkled and fell like liquid diamonds; and behind it on the floor the luminous spots danced brighter than before.

Grace clapped her hands, delighted.

"You have found it, Isaac! You have found it!"

While Isaac was intent upon pursuing his researches, the door of the room was suddenly thrown open. The voice of the mistress of the house was heard scolding in the passage.

"What! the children not gone to school yet! Do you know it's ten o'clock, Mr. Clark? You think of nothing, you don't."

"I was busy with my patients," replied the worthy doctor of the village of Grantham. The two children had been put to board and lodge with him on purpose to attend school. Their parents were abroad.

"And this is how you waste your time, you idle fellow!" cried the good woman, upon seeing her cupboard open, her favourite china plate in a fair way of being broken, and the floor flooded with water. For Isaac was so absorbed in the pleasure of seeing the dancing colours reappear that he continued pouring out water without noticing that, the plate being full, it ran over on to the table, and from the table to the floor.

"There's a nice mess. I tell you what it is, Isaac; if you do not behave better, I shall send you back to Woolthorpe. It is very shocking for a widow's son to waste his time as you do. I should like to know what use you will ever be on the farm if you go on in this idle fashion. Of course you have learned your lessons?"

"No, ma'am, I have not," muttered Isaac.

"Ah, just as I expected. Mr. Stokes is more and more dissatisfied with you; he told me yesterday that you did not lack ability, but that never in all his life had he seen a more inattentive, careless, idle scholar. 'Always looking about him, he can never fix his eyes on his book for a minute, Mrs. Clark,' says he. 'A fly buzzing about, a grain of dust floating in a sunbeam, a soap-bubble blown by one of his schoolfellows, are the things that he takes most interest in. But as for his lessons, anything pleases him better than them; he likes to be idle better than to be industrious.'"

"If Mr. Stokes said that," replied little Grace, quickly, "he is very much mistaken; he does not understand Isaac. I see him always busy working, even during play hours."

"Working! and pray at what?"

"Oh, at a good many things, ma'am. Did he not make me a pretty little cradle for my doll, which rocks of itself; and a little chest of drawers for Betsy, with a wardrobe on the top; and that pretty round table for Lucy. And look on the walls of his bedroom—they are covered with pictures of birds and beasts, which he drew and painted and framed all with his own hands; and then, then . . ."

Isaac pulled her pinafore and looked at her beseechingly; but his champion would have kept on in her defence, had not Mrs. Clark stopped her tongue.

"Very well, miss; that will do," said she, drily. "You have your reasons for excusing him; but his mother did not send him here to make dolls' beds and cupboards. He will please now to be off as soon as possible. To school! to school! You are an hour behind time."

Isaac's ears tingled at these words. He took his book and started for school, very uneasy about the lateness of the hour and his neglected lessons, but thinking more of his terrestrial rainbow. He was so absorbed in thought as he proceeded on his way, that he turned to the left when he ought to have turned to the right, and was thus twenty minutes later in reaching school.

When the morning's lessons were over, Isaac was kept in school an hour after his companions were dismissed. However, when he returned home he found Grace waiting for him, sitting on the desk.

She jumped down and ran to meet him.

"I have been waiting here for you a very long time. Look! the whole length of this shadow," said Grace, showing him the elongated shadow of one of the window-frames. "When I first came, this shadow reached only so far, where I made this mark; and now, see how far it comes! How it has travelled and grown!"

Isaac looked at the shadow and the mark; then joyously kissed the little girl.

"You don't know," said he, "that we were both doing the very same thing: I also examined the shadow of the window that fell upon a wall. They put me in a corner, where I stood very quiet, I assure you, thinking of something that would please you, Grace."

"Of what?"

"Of something that would remind us of the hour, and prevent us being scolded and punished."

"Ah—really now."

"Ah, if I succeed, we shall be more punctual than Mrs. Clark, or even Mr. Stokes himself: we shall be surer of the correct time than the church clock."

"Oh, Isaac! tell me what it is, quick. Do—pray do!"

"No, it's my secret. But I shall tell it to you, and show it to you, when I have succeeded, and finished it."

The little girl pouted her rosy lips.

"You won't let me help you, then, as I did with your windmill? You have not forgot that I cut out and sewed the sails for you from the pattern you drew; and you said they were very neat and pretty; but now you think I can be of no use to you."

"Yes, yes, dear Grace; you shall help me, and a good deal too. Only you must promise me that you will not talk about me to Mrs. Clark, as you did this morning."

"It is so tiresome to hear her continually saying that you are idle, when I know that you are the most industrious and cleverest boy in the school. I should like to know if any of them has got a kite like yours—so beautifully painted, and flies higher than anybody's. I have never seen a kite fly as yours does, Isaac; it is just like a bird. Who but you contrived the paper lanthorns to light you on your way to school in winter mornings? Who would have made that pretty mill but you (and I)? And who would have thought of making it go without wind, by putting a little mouse on a tread-wheel inside, up which he runs to get at the bit of cheese above his head, but never reaches it—who but you, Isaac? What a funny miller he makes, to be sure; and how pleased I am to feed him when his work is done!"

"Yes, but what I have now got in my head is something of more importance than that, Grace," replied the little man, with a serious air. "It is not an amusement: it will prove a useful thing to you, to me, to Betsy, to Lucy, and even to Mr. and Mrs. Clark themselves."

"If I guess aright, will you say—*yes?*" said the little girl. "I am going to try. What is it that will prevent us from forgetting what the time is; that will tell us the hour; why, a watch, to be sure. Do you think you can make a watch, Isaac?"

"I do not think I can. I should want so many things I cannot get. Besides, I was not thinking of a watch: something much simpler."

"An hour-glass, perhaps?"

"You burn; but you have not guessed yet. An hour-glass will only measure the space of an hour, but will not tell you what that hour is. I have even remarked when at the farm, where there is an hour-glass, that it was scarcely ever correct in measuring the time. I have often amused myself with comparing it with a clock; it always went faster, because the sand in passing through the hole gradually made it larger, and then, of course, it ran through quicker. What I wish to make, Grace, will show the exact time of day: instead of being regulated by the clock, as the hour-glass is, the clock will be regulated by it; and it will be,—but I shan't tell you how it will show the hour."

"Very well, Isaac, set to work at once, there's a dear."

"No, I must wait till the evening. I have some calculations to make."

"This evening, then," said the little girl, skipping away to have a game of romps with her playfellows.

II.

At half-past seven Grace was at the place appointed, the widest path in the garden; when she reached it, she found Isaac absorbed in the contemplation of the starry heavens.

"You have not begun yet, then," she cried. "Mrs. Clark will let us stay up till nine o'clock, because to-morrow is Sunday. But what are you looking at?"

"Do you know where to find the Pole-star, Grace?"

"You showed me once, but I have forgotten where to look for it. Oh yes! I remember now—draw a straight line from the last wheel of Charles's Wain, to the fourth star of the little waggon: this fourth star, which is at the head of the horses, and which shines brighter than the others, is the North star, or Pole-star."

"Very well remembered, Grace; and do you recollect that I said this star always remains in the same place, while the others turn round it, and change their positions in the sky? I have many times got up in the middle of the night to watch their motion; and it appeared so beautiful that my heart felt too full."

"Why?" inquired Grace.

"I do not know. I thought of God, who created these beautiful stars, and who causes them to move in such wonderful order. I wanted to know how, and why. I followed them with my eyes, and compared them with each other; and I put a sheet of transparent paper on a pane of glass in

the window, and I marked on it, in points, the Pole-star, and then the stars that surround it. I then perceived that the first did not change its position, while the others changed every hour, describing circles more or less large in proportion to their distance from the North Pole: some, like the sun, even rose in the east and set in the west."

"And have you seen all that, Isaac?" inquired the little girl, with respectful admiration.

"Yes, and many other things beside. But we must now go to work, else we shall not have time enough."

The boy had brought two stakes with him, and he proceeded to drive one into the ground with blows from a mallet. Grace was surprised to see that, instead of putting the stake in an upright position, he made it slope, and from time to time knelt down beside it, and applying his eye to it, made the stake point to the Pole-star. When he had driven the stake pretty deep into the ground, he hung a plumbline from the upper end. Having thus marked the vertical line, he drove a second stake in that direction into the ground, so that it sustained the first one.

He then begged Grace to apply her eye to the bottom of the inclined stake, and to tell him if she saw the Pole-star directly opposite the end of it, so that he might *orient* his stake. He raised it or lowered it as she directed; then satisfying himself with his own eyes of the accuracy of the line, he put the two stakes in contact and nailed them together, while Grace held them steady. These preliminaries were scarcely accomplished when Mrs. Clark's shrill voice resounded through the garden; it was nine o'clock, and "time for children to go to bed."

Next day Isaac took a saw and cut off a piece from one of the stakes that made it longer than the other; and at half-past eleven, Grace, who could not comprehend how two stakes, making an angle with the surface of the ground, could ever tell them the hour, saw her companion reappear. He carried a little box with him, which he opened very carefully, and placed on a smooth spot of ground.

"Oh, what is that?" cried Grace. "I should think it was a clock, but I never saw one like it. And that needle that is always trembling, in balancing on a point, what does it do?"

"It shows where the north is, as marked on the frame. It is a compass, which Mr. Clark has lent me: it always points to the polar star."

"But how do you know that, Isaac? The star is not there now."

"Yes, it is; it has never moved; only, because it is daylight, we cannot see it."

"And if it was not daylight, could we see it? Are you quite sure?" inquired Grace.

And she looked as hard as she could into the blue sky over her head, but without seeing anything of the polar star; yet, if Isaac said so, it must be true, as he never was known to utter an untruth.

Meanwhile the shadow of the stakes grew shorter and shorter. Just before the hour of noon Mr. Clark happened to enter the garden, and he

went up to the two young observers to see what they were about. After examining Isaac's work, he smiled with an air of curiosity and pleasure very encouraging to the boy.

"Is it done right, sir?" asked Isaac, with some degree of anxiety.

"That end points to the polar star," said Grace, proudly: "Isaac has *oriented* it."

"Did Isaac contrive this?" said Mr. Clark; "it is very ingenious; you have made a gigantic gnomon, but a very correct one, also."

"A gnomon! a gnomon! has Isaac invented a gnomon?" exclaimed the little girl.

"I did not know that that was the name of it," said Isaac.

"It is, in fact, the stylus of a sun-dial of large dimensions," replied Mr. Clark. "I do not remember to have seen one so large before."

"It is nearly noon, sir, is it not? Will you be so kind as to look at your watch?"

"It wants only a minute of noon, my boy. Make ready to draw the line of your meridian."

Isaac drew the line which the blended shadow of the two stakes formed on the ground, and Grace trembled with joy when she saw that this line was exactly in the same direction as the needle of the compass, north and south. The shadow then marked mid-day exactly,—that is to say, the place where the sun, at the highest point of his daily course, from east to west, crosses the line which Mr. Clark called the *meridian*, the imaginary axis upon which the earth turns, and supposed to be drawn from the centre of the earth to the polar star, in passing through the place where they now were.

"You will be sure now of knowing when it is mid-day," said Mr. Clark; "but what will you do to find out the other hours?"

"There will be no difficulty in that," Grace quickly replied. "We notice the spot at which the shadow arrives in an hour, and make another mark there; and another for two hours; another for three, and so on."

"But there is a little difficulty in the way, which is, that the shadow does not arrive at the same place every day of the year: it advances or retreats according to the seasons: it is noon only when it returns exactly to the same point, summer as well as winter."

"I know it," replied Isaac, "I have noticed it many times; so I wish to mark the shadows, hour by hour, upon that great board, and draw long lines upon which I shall have the pleasure of seeing the shadow fall, advance and retreat, lengthen and shorten, throughout the year. My board will stand east and west: I shall fix it strongly in the ground between two posts, and the lines and figures I shall paint upon it will not be so easily rubbed out as those drawn upon the ground."

"Try; but consider this as only a rough sketch of a sun-dial, and that to perfect it would require more perseverance, observation, and knowledge, than is to be found in one of your age, generally."

"Ah! he will succeed, I am sure," cried Grace, clapping her hands. "He

has done a great thing, and a useful, too. You can tell Mrs. Clark that she must not call Isaac 'lazy' any more."

One fine day, just a year after the above incident, a real sun-dial was fixed in the garden, on a stone base, which Mr. Clark had ordered to be made; but the slate dial, quite flat and horizontal, had been divided by Isaac into twenty-four hours, twelve for the day and twelve for the night: these latter hours he might have dispensed with, considering the absence of the sun, but he had no wish to be sparing of his labour. A copper stylus, perfectly oriented, and inclined to the horizon as many degrees as the east of the axis of the earth is inclined with respect to Grantham, had replaced the gigantic and primitive gnomon in which Grace took so much pride. Isaac had calculated, verified, and done everything by himself, without the assistance of any one, and at length had arrived at the grand result he aimed at, of not forgetting to know the hour so often, and of regulating the watches and church clock instead of being regulated by them.

Isaac also made a clepsydra or water-clock in an old box some three or four feet high, which Mr. Clark had consented to give up to him: it marked the hour almost as accurately as the sun-dial, by means of a needle carried by a bit of cork, which rose and fell according to the level of the water, on the surface of which it floated.

During the holidays at his mother's farm Isaac made several sun-dials: among others, a vertical one on the wall of the house, which served as a clock for the workmen.

His mill worked to the admiration of everybody: obeyed the wind when there was any, and moved by the mouse when there was a calm.

Isaac, always silent, serious and thoughtful, planned the construction of a little mechanical four-wheeled carriage for his young friend and companion Grace, who had scalded her feet, and was unable to walk.

Mrs. Clark, however, could not appreciate Isaac's mechanical genius, and gave it as her firm opinion that he would make but a very poor farmer. Whenever she surprised him contemplating a sunbeam or blowing soap-bubbles, watching their movements and admiring their beautiful colours, she could not help shrugging up her shoulders, and exclaiming,—

"What's the good of that, I should like to know?"

"To learn," replied Isaac.

"Let him alone," said Mr. Clark, kindly; "he learns more by observing than by reading. It is to boys of his nature that God opens His great book. That little sly-boots sees further than we do, young as he is. I am considered a learned person, Mrs. Clark. Well, upon my word, the idea of orienting a gnomon by the polar star never came into my head. Isaac has got ideas of his own, and I shall not be surprised if he makes a noise in the world some day. I wish his work to bear his name: his sun-dial must be called ISAAC NEWTON'S SUN-DIAL."

TACKING SHIP OFF SHORE.

BY THE MAN AT THE WHEEL.

I.



HE weather leech of the topsail shivers,
The bowlines strain and the lee shrouds slacken,
The braces are taut, the lithe boom quivers,
And the waves with the coming squall-cloud blacken.

II.

Open one point on the weather bow
Is the lighthouse tall on Fire Island Head;
There's a shade of doubt on the captain's brow,
And the pilot watches the heaving lead.

III.

I stand at the wheel, and with eager eye
To sea, and to sky, and to shore I gaze,
Till the muttered order of "FULL AND BY!"
Is suddenly changed to "FULL FOR STAYS!"

IV.

The ship bends lower before the breeze,
As her broadside fair to the blast she lays;
And she swifter springs to the rising seas,
As the pilot calls, "STAND BY FOR STAYS!"

V.

It is silence all, as each in his place,
With the gathered coils in his hardened hands,
By tack and bowline, by sheet and brace,
Waiting the watchword, impatient stands.

VI.

And the light on Fire Island Head draws near,
As trumpet-winged the pilot's shout,
From his post on the bowsprit's heel I hear,
With the welcome call of "READY. ABOUT!"

VII.

No time to spare! It is touch and go,
And the captain growls, "DOWN WITH HELM! HARD DOWN!"
As my weight on the whirling spikes I throw,
While heaven grows black with the storm-cloud's frown.

VIII.

High o'er the knightheads flies the spray,
As we meet the shock of the plunging sea;
As my shoulder stiff to the wheel I lay,
As I answer, "Aye, aye, Sir! HA—A—R—D A LEE!"

IX.

With the swerving leap of a startled steed,
The ship flies fast in the eye of the wind,
The dangerous shoals on the lee recede,
And the headland white we have left behind.

X.

The topsails flutter, the jibs collapse,
And belly and tug at the groaning cleats;
The spanker slats, and the mainsail flaps,
And thunders the order, "TACKS AND SHEETS!

XI.

Mid the rattle of blocks and the tramp of the crew,
Hisses the rain of the rushing squall;
The sails are aback from clew to clew,
And now is the moment for "MAINSAIL, HAUL!

XII.

And the heavy yards, like a baby's toy,
By fifty strong arms are swiftly swung;
She holds her way, and I look with joy
For the first white spray o'er the bulwarks flung.

XIII.

"LET GO AND HAUL!" 'Tis the last command,
And the head sails fill to the blast once more;
Astern and to leeward lies the land,
With its breakers white on the shingly shore.

XIV.

What matters the reef, or the rain, or the squall?
I steady the helm for the open sea;
The first mate clamours, "BELAY THERE, ALL!"
And the captain's breath once more comes free.

XV.

And so off shore let the good ship fly;
Little care I how the gusts may blow,
In my fo'castle-bunk in a jacket dry,—
Eight bells have struck, and my watch is below.

SINGULAR INSTANCE OF PRECOCITY.

LOUIS II. was crowned King of Hungary when only two years old. At four he had a beard, at fifteen his hair was grey; he was in his twentieth year when he was killed at Mohatsch.

THE STORY OF THE COFFEE TREE.

"DID you ring, sir?"

"Yes, Phillis; bring me a cup of coffee, if you please."

"Directly, sir."

I had been sitting all the evening in my easy chair, over a cheerful fire, perusing Ovid's *Metamorphoses*, in that splendid folio edition, with such magnificent plates, published at Amsterdam, in 1770. They make no such books now-a-days: the Dutch merchants of that date must have been liberal patrons of literature, for publishers to have ventured upon such costly outlay as this volume before me involved. Books were comparatively few in those days, and the capital that now suffices for a dozen ephemeral publications was concentrated on one, but such a one! sure to be handed down from father to son to the third or fourth generation, or longer, as heir-looms. I entertain great respect for those old Dutch book-makers, for their books and their purchasers also.

Thinking of these worthy Dutchmen I fell into a "brown study," forgetting my coffee, which Phillis had placed conveniently at my elbow. Inhaling its fragrant perfume my brain became exalted; all the strange things described by Ovid flitted before my eyes, until they made room for the form of a delicate maiden, clothed in green, holding a branch of a blossoming coffee-tree in her hand.

She looked at me earnestly, with a saddened, melancholy expression in her face, like one who has suffered much. Although her lips moved not, yet I heard a clear musical voice which seemed to proceed from the delicate form before me. I listened attentively, and as well as I can remember, her words were these:—

"Mortal, drink, the cup is mine. My trials are manifold, and now my heart's blood is drained to refresh weary souls like thine. I am a benefactor of thy race: few amongst you honour and appreciate me, the majority neglect or ill-use me.

"Their ill-treatment begins from the days of my youth. Instead of leaving me on the branches of the parent tree until ripened to maturity, they pluck me while green and immature, before I have had time to develope that delicious aroma for which I am so highly prized by the wise. If I were dried in the sun, my thin, tough garment (the husk) would shrivel up, become brittle and easy of removal: but my ignorant foes, knowing no other means by which they can get rid of this envelope, drown me in tanks of water, where the greater part of my fragrance is washed out!

"Judge what my feelings must be, turned into the world again in this feeble, half-drowned condition! I reflect upon my glorious ancestry, for you must know that I belong to the noblest families of the far East, whose origin is lost in the remoteness of ages. Abyssinia is the cradle of our race. Arabia the land of our adoption."

I bowed my head deferentially.

"I belong to an aristocratic race of plants. Mocha is my birthplace, in that corner of the earth where Nature has lavished the most subtle and exquisite odours: the place to which mankind has given the appropriate name of 'the happy,' *Arabia Felix*. I am sometimes confounded among the plebeians of Java, Brazil, Hayti, and Jamaica; but this association does not offend my pride; I am conscious of my superiority, and am content. During my infancy, when I expanded as a flower on the maternal stem, an elder sister related to me the things of the past, the glory and splendour of our illustrious family. O beauteous starry nights! O radiant sky, are ye for ever flown?"

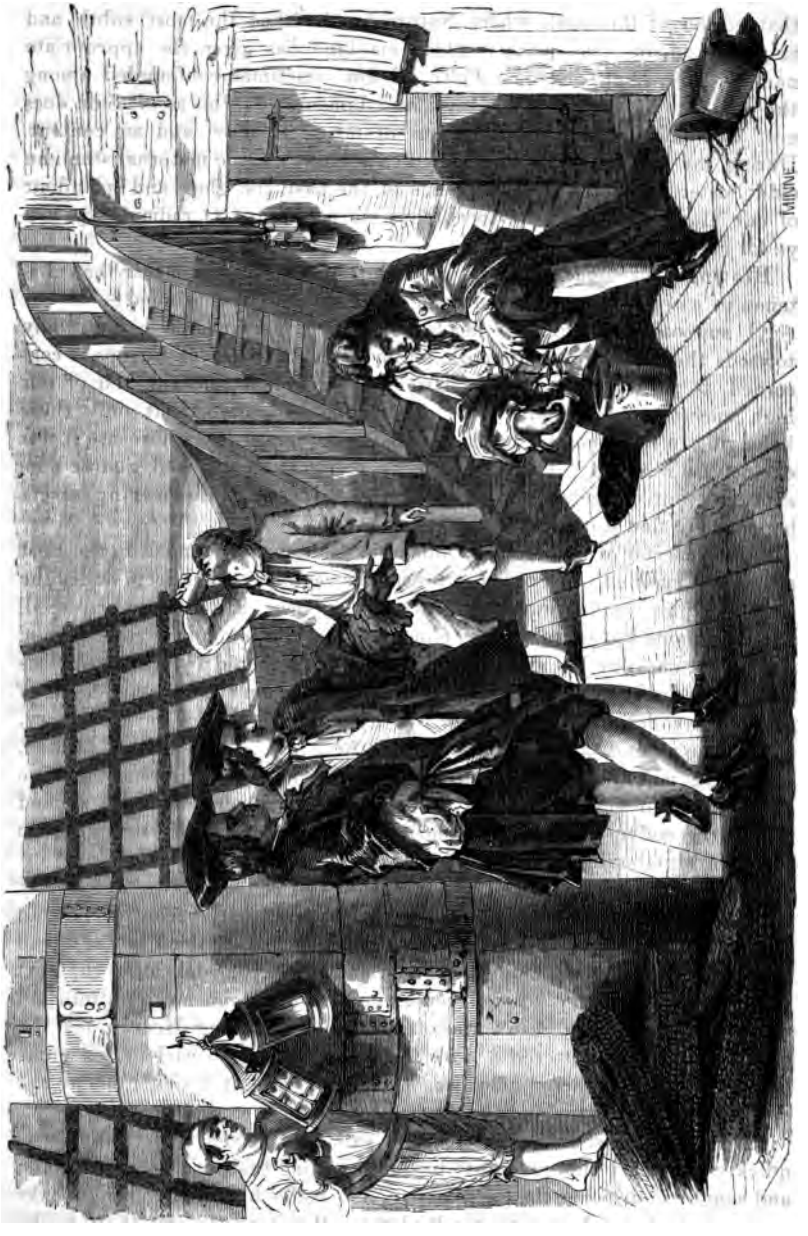
Heaving a profound sigh, the delicate form wiped away a tear that glistened in its eye; then, as if ashamed of its emotion, it continued:—

"I suppose you think we made our first appearance in history only towards the close of the fifteenth century, which, so far as Europe is concerned, is perhaps true: but in Africa and in Persia they can tell of our high ancestry. So highly were our virtues estimated, that only those belonging to royal houses drank the celestial beverage, for whose use it was exclusively reserved. The secret of its preparation was well guarded for centuries, until a monk, one of that tribe so famous in discovering secrets, happened to find it out.

"The superior of one of those numerous monasteries founded in the East after the Crusades, observed that his monks regularly fell asleep, under the pretext of meditation, during the evening service. He had recourse to all the expedients known to rouse the pious zeal of the community, but in vain. At length, one day his attention was strongly attracted by a very curious scene. A flock of goats happened to browse among the young shoots of some wild coffee trees which grew in great numbers around the monastery, and the reverend father remarked that the goats became greatly excited, exhibiting most unusual liveliness and frolicking. He observed the same effect to occur several days in succession, and he very naturally argued that if the coffee had such an exciting effect upon the goats, it might also rouse the slumbering faculties of his recluse brethren.

"The worthy man collected a quantity of the coffee berries, and boldly tried the first experiment with them upon himself. He began by chewing them raw, and found them detestable: then he baked them in the bread oven, and tried another mouthful, and found the flavour delicious: the next step was to pound the roasted berries in a mortar, and make an infusion with hot water. The result was delightful. Thanking Heaven for the discovery, he administered a dose the same evening to each of his pious brethren, and the sacred office was performed without a single sleepy eye or nodding head disturbing the worthy superior's equanimity.

"Near this Christian monastery there existed a convent of dervishes, who quickly remarked the change to liveliness among their drowsy neighbours, and sought to discover the cause of it. The coffee had rendered the monks so gay and cheerful, that they talked more than was wise for them to do, and innocently let out their secret. The dervishes quickly profited by the



CAPTAIN DESCLIEUX GIVING HIS ALLOWANCE OF WATER TO THE COFFEE TREE.

information, and the use of coffee quickly spread, like the firing of a train of gunpowder, over all the East, and from thence to various European countries.

"The result was marvellous. After the long slumber of the Dark Ages the human intellect rose to its greatest heights; to what can we attribute that host of great thinkers, writers, poets, and philosophers that rose up at this period, minds that advanced in every direction? to what but to the inspiring influence of the fragrant Arabian berry?

"Shall I show you that coffee is the great friend of liberty, and the strongest foe of the principle of absolute authority? I laugh even now when I think of the riot caused by my great great grandfather at Constantinople—"

"What!" I exclaimed, with surprise, "a riot at Constantinople?"

"Yes, reverend sir, at Constantinople, and this is how it occurred. It was during the reign of Amurath III. that places for the sale of ready-made coffee were opened, under the name of *cafés*, and the population crowded them to such a degree that they neglected their religious duties. The mufti complained to the sultan, and Amurath commanded the *cafés* to be shut up. My great great grandfather bearded the monarch upon his throne, and courageously prepared an infusion of the fragrant berry before the sultan's eyes. It was presented to the sovereign by the fair hands of his favourite sultana; he drank, and was subdued; and the obnoxious decree was abolished.

"But the mufti is the type of obstinacy. He would not allow himself to be defeated. The *cafés* were again suppressed by the grand vizier Koproli, during the minority of Muhammed IV., but the people rose in insurrection, and the authorities had to yield the point and allow them to drink their coffee peaceably.

"At the beginning of the fourteenth century, in the year 930 of the Hegira, Abd-allah Ibrahim, sheik of the law, ascended the pulpit of a mosque, and pronounced a violent tirade against coffee. This happened at Cairo. The population was divided into two parties—the coffee drinkers and the anti-coffee drinkers. They soon came to blows, and blood flowed freely. At this time Cairo had a governor whose name history has omitted to mention, but who was doubtless one of the greatest statesmen a nation ever possessed. When informed of the disorders of which his good city of Cairo was the seat, he assembled the doctors of the law, and the principal leaders of the anti-coffee party; he made no speech, but he clapped his hands together with a loud noise three several times. At this signal numerous slaves made their appearance bearing trays loaded with cups of the purest Mocha coffee. Each member of the company assembled received one. As soon as the cups were emptied, this great man broke up the meeting, and from that day to this the tranquillity of Cairo has never been disturbed on account of coffee. Shall I tell you of similar troubles that occurred in London consequent upon the introduction of coffee into that city? Charles II. wished to follow the example of Amurath at Constan-

tinople; but in England as in Turkey the authorities were constrained to capitulate before the revolutionary spirit exhaled by the Arabian berry.

"Coffee was introduced into France in 1660 by Solyman Aga, Ambassador from the Sublime Porte to Louis XIV. Some years afterwards, an Armenian named Pascal opened a coffee shop during the fair at Saint Germain, but the true *café*, in the elegant style that now prevails, was opened by a Sicilian, named Procopius, and his success induced many others to imitate his establishment. During the reign of Louis XIV. no less than 600 *cafés* were opened in Paris; there are now upwards of 3000.

"Reverend sir," said she, in that thin kind of voice which in children's stories is attributed to fairies and good spirits, "you look as if you pitied my sad fate, but do not think that I murmur at it, or complain. I have, it is true, undergone severe trials, and I know only too well that others still more severe await me. I shall be crushed between the steel teeth of a mill, till my very bones are ground to powder. I shall be thrown into a vessel of boiling water, perhaps, too, in company with my worst enemy, *Chicory*; then, when I have given up my heart's blood, my fragrant breath, and all that is precious within me, I shall be cast out, under another name, it is true, among the waste and rubbish of the kitchen. But what matters that to me! I shall have been useful, and the sacrifice will bring its own reward. Perhaps I shall have excited some noble thought in your brain, which, without my stimulus, would have slumbered for centuries. I shall have been put into contact with the purest ray of human intelligence. I shall have lived in it for a moment! Seek among the infinite productions of the vegetable kingdom for another that can present such testimonials, and you will seek in vain!"

"I beg a thousand pardons," said I, a little dumb-founded at this bold address. "I do not for a moment doubt your virtues, for I have often appreciated their influence,—but it seems to me that ——"

"Reverend sir," interrupted the form, with an energy and show of pride that astonished me. "I know too well how ungrateful men are. You esteem and appreciate the merits of coffee, and it is your duty to do so, for does it not soothe your nerves and awaken fresh vigour in your frame when exhausted by study and other labours; but you must relate to mankind my long *Odyssey*. You know the poem of my perigrinations, I am sure."

My surprise was now at its height. The form went on:—

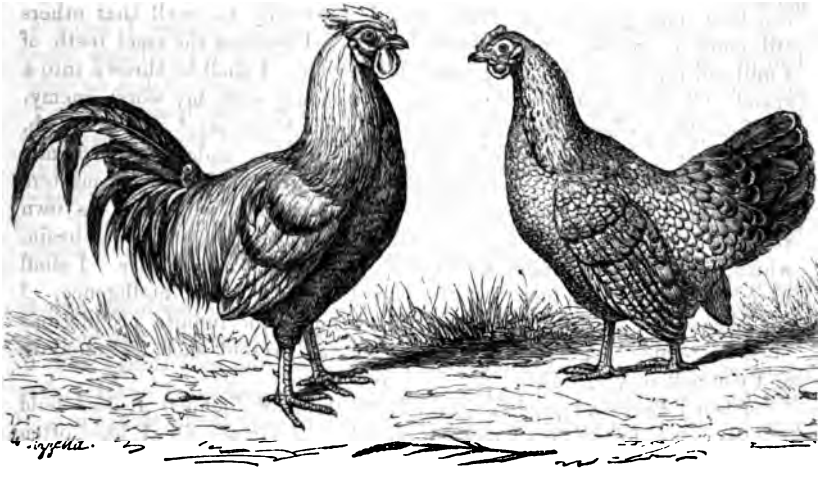
"But I must not omit to relate an interesting chapter in the history of the introduction of the coffee plant into the West Indies. In 1720, Antoine Laurent de Jussieu, Professor of Botany in the *Jardin du Roi*, sent three young coffee trees to Martinique in order to see if the plant would thrive in the climate of the Antilles. They were given in charge of the captain, whose name deserves to be perpetuated to all time. It was Desclieux. During the voyage, which was unusually long, the crew ran short of water, and two of the coffee trees perished for want of it. In order to secure the only remaining tree, Desclieux did not hesitate giving it daily his scanty

allowance of water, and thus saved the plant, which became the source of the countless host of coffee trees now cultivated in the island of Martinique and other islands of the West Indies."

"Shall I take away your cup, sir?" said Phillis, rousing me from my reverie. I looked again, but my coffee-genius had vanished.

TOM'S POCKET MONEY, AND HOW HE MADE IT.

TO THE REV. DR. PRIMROSE.



MY BANTAMS.

REVEREND SIR,

IF I may judge by myself most boys want a good deal of pocket money, much more than their parents think fit to bestow upon them. But, sir, they should consider how many things a boy wants—really useful things; and it is very hard, I assure you, to be obliged to go without a thing you have set your mind upon, when you know you could get so much out of it, pleasure or profit, if you had it.

The only boy I ever knew who always had plenty of pocket money, more, indeed, than he cared to spend, was Tom Harding. I remember saying to him one day:—"Does your father or mother give you all that money, Tom?" and he replied, "Very little of it." "Then pray where do you get it?" I asked. "Oh!" said he, laughing, "I make it." "Make it?" said I, astonished, "how's that?" "Come home with me this afternoon," he

replied, "and I'll show you; and then you can make some too, if you do as I do." So, sir, I accepted Tom's invitation, and walked home with him that same afternoon.

Tom's father was a retired merchant, who lived in the village where our school was located. He occupied a pretty, old fashioned house, surrounded by about ten acres of ground, laid out as orchard, kitchen, and flower gardens, shrubberies, &c. Tom had a piece of ground to himself, to do just as he liked with. I think there must have been an acre of it.

"Come along, Ned," said Tom, "and I'll show you my Bantams. I make money out of them, to begin with."

"Do you, though?" I replied, "who would have thought it! pray tell me how."

Well, last Christmas, when I came to count up my money, I found I had just thirty shillings. Half-a-crown from one, and five shillings from another counts up, you know, and I said to myself, 'What shall I do with it? I fancy I want a good many things, but I can hardly make up my mind which I want most. If I buy a bow and arrows I shall perhaps be sorry I did not give the preference to a fishing tackle. If I buy the tackle, I may wish it had been a cricket bat, and so on. No, I will not buy anything of that sort. I'll buy something that I can make money out of.'"

"How could you think of such a thing!" I said. "I'm sure I never should have thought of it."

"Well," said he, "I am not quite sure what put it into my head, but I think it was going to market one day, and seeing the buying and selling going on so fast, and what big money bags those who sold things had, I said to myself, 'Ah! if I had something to sell, perhaps I could make money too. What shall it be?' Then I thought over all the things a boy likes to keep, such as pigeons, rabbits, white mice, silkworms, chickens, and ducks. I had heard that money could be made by keeping pigs, and fattening them; and in keeping cows, and in making butter and cheese; but I did not think I should be able to manage *them* at first, so I took to the easiest."

"Did you think of bees, Tom? You know honey and wax sell at a good price, and those creatures do not cost much for keep."

"Oh yes. I thought of the bees," replied Tom, "but come and see my Bantams."

Then he led the way across the flower garden to a little enclosure fenced n with wire, where I saw some thirty or forty of the prettiest little Bantams I ever beheld.

"What do you think of them?" said Tom, proudly; "they are all of my own rearing."

"Beautiful! what pretty creatures; how consequential; how impudent they are; you might call them, or perhaps they call themselves, 'lords of creation;' they strut about as if the world was theirs; yet they are only the Tom Thumbs of the poultry yard."

"Yes," said Tom, "father says, 'What little people want in size they

usually make up in conceit and consequential behaviour:' and that Bantams are no exception to the rule."

"Well, Tom," I said, "how about making the money? You promised to tell me, you know."

"You remember I told you I had thirty shillings; so with this magnificent capital I resolved to set up in business. Father gave me all this bit of ground here, alongside the orchard, and the outhouse included. So next market day, with my thirty shillings in my pocket, I started for the market, revolving in my mind whether I should invest it in pigeons, poultry, or rabbits. I walked round the market several times, but saw nothing that took my fancy so much as a basket of Bantams,—a cock and five hens. The price was five shillings for the cock, and half-a-crown a piece for the hens: so if you reckon it up, Ned, you will see that my investment took seventeen and six-pence of my money."

"That sum's a very easy one."

"Well; then I had to lay in a stock of food: I bought a bushel of barley, and a bushel of oats, a quart of hempseed, a peck of Indian corn, and fourteen pounds of tallow-chandler's greaves; then what money was left I spent in fitting-up and furnishing the outhouse with nests, feeding trough, and roosts."

"So your money was all gone very soon, Tom; what next?"

"Well, the hens began to lay eggs at once, and by the end of the second week I had twenty!"

"You do not say so! You ate them, of course."

"Not such a fool: oh, no! next market day I took them to market, and sold them to an old market woman for threepence each; and I suppose you can reckon that up. I make it come to five shillings, what do you make it?"

"Twenty threepences is ten sixpences; and ten sixpences is five shillings. Hurrah!"

"There was profit in their keep already, for they found so much food in the orchard that I think they did not cost me a shilling for grain during all that time."

"Ah!" said I, "now I see how money is made."

"But that's not half," said Tom, laughing; "my hens kept on laying eggs, and I went on selling them, till the weather becoming warm and fine I let two of the hens sit, and they each raised broods of eight chickens. How many had I now, altogether, Ned?"

"Let me see; one cock, five hens, and sixteen chicks, why that's two and twenty in all."

"According to Cocker, it is," said Tom, winking. "In three months those sixteen chicks were worth half-a-crown a piece, and sixteen half-crowns is worth as much as a couple of sovereigns."

"But there was their food? How much did that cost you, Tom?"

"Sixpence a week for twelve weeks; six shillings; six from forty leaves thirty-four; that more than paid me back my first outlay; but all this time

the other three hens were laying about a dozen eggs a week, which I always sold at good prices. Then my birds are such little beauties—everybody says so—that I shall send them to the Birmingham Prize Cattle Show, and who knows but what I may gain a silver cup?"

"I hope you may, Tom, I am sure. I wish I could keep Bantams. But you are at home, and can do as you like, and I am at school, where, as you know, it would be impossible to keep Bantams."

At this moment a female voice was heard in the garden calling, "Tom! Tom!"

"Ned," said Tom, "I am sorry I must leave you, but I am wanted indoors. I meant to show you my rabbits and other things that make money for me. You must come another day and see them."

"Oh, thank you, Tom; I shall be so glad."

"Good bye, old fellow."

"Good bye, Tom."

This, sir, is a full and particular account of my first visit to Tom's money-making concern, which he calls his "diggings." Some of your boy-readers may read and profit by it, I hope; and if they want to learn more about keeping chickens and how to make money by them, let them peruse the little book entitled, "Eggs and Poultry as a Source of Wealth," costs one shilling. In my next letter I shall describe Tom's rabbit warren.

REUBEN.

HOW I GREW STRONG.

BY DR. WINSHIP.

"HERE goes the smallest fellow in our class!"

I was crossing one of the paths that intersect the college green when this remark fell upon my ears. Looking up, I saw two stalwart freshmen on their way to recitation, one of whom had called the other's attention to my humble self by this observation, reminding me of a distinction I did not covet.

It was not quite true. There was one, and only one, member of the class who was as small as I. Some consolation, though not much, in that. But the air of amused compassion with which the lusty freshman, who had made me feel what the *digito monstrari* was, now looked down on me, raised a feeling of resentment and self-depreciation, which left me in no mood to make a brilliant show of scholarship in construing my "Isocrates" that morning.

"True, I am small, nay diminutive," I soliloquized, as I wended my way homewards; "but surely this is no fault of mine."—"Hold, there! Are you quite sure it's no fault of yours? Are we not responsible to a much greater extent than we imagine for our physical condition? After making every abatement for 'natural constitution,' does not Nature leave it largely in our own power to counteract both physical and moral tendencies, and to mould the body as well as the mind, if we will only put forth in action the requisite energy of will?"

My meditations on the subject of my inferior stature led me to a determination to try what gymnastic practice could do to remedy the defect. I began my practice, and kept it up with enthusiasm for some five or six weeks. Then I began to grow less methodical and regular in my habits of exercise; and then to find excuses for my delinquencies. "After all," I thought, "what matter if, like Paul's, my 'bodily presence is weak?' Were not Alexander the Great and Napoleon small men? Were not Pope, and Dr. Watts, and Moore, and Campbell, and a long list of authors, artists, and philosophers, considerably under medium height? Is not Lord John Russell as small almost as I? Have I many inches to grow before I shall be as tall as Dr. Primrose?"

These consolatory considerations softened my chagrin at the contemplation of my height. "Care I for the limb, the thews, the stature, bulk, and big assemblance of man? Give me the spirit, Master Shallow,—the spirit!"

And so my gymnastic ardour, after a brief blaze, flickered, fell, was ashes. But it was destined to be soon revived by an incident trifling in itself, though of a character to assume exaggerated proportions in the mind of a sensitive boy. A youth who had considerably the advantage of me both in inches and in years, and whose overflow of animal spirits required some object to vent it upon, selected me as the victim of his ebullient vivacity. He began by tossing my book down stairs. This seemed to me rather rough play, especially from one with whom I was not, at the time, on terms of intimacy; but, making allowance for the hilarity of classmates just let loose from recitation, I picked up, without a thought of resentment, the abused volume, and took no further notice of the matter. I subsequently found that it was merely the commencement of a series of similar annoyances. This lively classmate would even play tricks on me at the dinner table.

What was to be done? I mentioned the grievance to a friend, and he remonstrated with my lively classmate, threatening him with my serious displeasure.

"Pooh! how can he help himself?" was the reply that came duly to my ears.

Sure enough, how could I help myself? The aggressor was my superior in weight and size. It was a plain case that I should get badly and ridiculously thrashed if I attempted to cope with him in any pugilistic encounter. But how would it do to demand of him "the satisfaction of a

gentleman?" True, I knew nothing of pistol shooting, and had never handled a small-sword. No matter for that.

But another consideration speedily drove this scheme of vengeance *à l'outrance* out of my head. Not long before, a peppery little freshman had been insulted, as he thought, by a Sophomore. The Soph, I believe, had knocked the young one's hat over his eyes, as they were playing foot-ball. Freshman sent a challenge, which was received with uproarious laughter among the Sophs assembled in the aggressor's room. One of the conspirators penned an acceptance, fixing as the weapon hair triggers—time, five o'clock in the morning—place, the Marshes—second, the bearer, Mr. M——, the writer of this reply.

It was a cruel joke. A sham second was imposed on poor little Fresh. Brave as Julius Cæsar, he sat up all night, writing letters and preparing his will. Punctual to the moment, he was on the chosen ground. An unusually large delegation for such a delicate affair seemed to be present. One rascal, who wore enormous green goggles, was pointed out to the innocent as Dr. von Unkempt, a celebrated German surgeon, just arrived from Leipzig. Little Fresh shook hands with him gravely, amid the smothered laughter of the conspirators. The distance was to be five paces: for it was whispered, so as to reach the ear of Fresh, that Soph was thirsting for his heart's blood. They take their places—the signal is given—they fire—and with a hideous groan and a wild pirouette, the Soph falls to the ground.

The freshman is led up near enough to see the fellow's face covered with blood, and to hear his cries to his friends to put him out of his misery. Intensely agitated, poor little Fresh is hurried by pretended friends into a coach, and driven off, and it is not until a week afterwards that he learns he has been the victim of a hoax.

No! it would never answer for me to run the risk of being *sold* in any such way as this. I must select a surer and more practical vengeance. I thought the matter over intently, and finally resolved that I would put myself on a physical equality with my persecutor, and then meet him in a fair fight with such weapons as Nature had given to us both. I accordingly said to the friend and classmate who had played the part of intercessor, "Wait two years, and I promise you I will either make my tormentor apologize, or give him such a thrashing as he will remember for the rest of his life."

Thus was my resolve renewed to accomplish myself as a gymnast, and, above all, to become strong. My previous attempts in the gymnasium had been spasmodic and irregular. Having now a definite object in view, I set about my work in earnest, and went through a daily systematic practice of a little more than an hour's duration. The gymnasium, though ordinary in its accommodations, had a good arrangement of apparatus, of which I faithfully availed myself. The spring-board, horse, vaulting apparatus, parallel bars, suspended-rings, horizontal and inclined ladders, pulley-weights, pegs, climbing-rope, trapezoid, etc., were all put in frequent requi-

sition. My time for exercise was generally in the evening, when I would find myself almost alone.

Naturally indolent, it was not without a severe struggle that I overcame a besetting propensity to confine myself to sedentary pursuits. The desire of retaliation soon became extinct. My pledge to my friend and sympathiser, that in two years I would cry *quittance* to my foe, would occasionally act as a spur in the side of my intent; but my two best aids in supplying me with the motive power to keep up my gymnastic practice were *habit* and *progress*. What will not habit make easy to us, whether it be for good or for evil? And what an incentive we have to renewed effort in finding that we are making actual progress, that we can do with comparative facility to-day what we could do only with difficulty yesterday!

Two years, while we are yet on the sunny side of twenty, are no trifle; but for two years I persistently and methodically went through the exercises of the gymnasium. At the end of that time, I had quite lost sight of my original object in cultivating my athletic powers, for all annoyances towards me had long since been dropped by my old enemy. But, punctually on the day of expiration, the friend, who had listened to my pledge, came to me and claimed its fulfilment. From some evidences which he had recently had of my strength, he felt a soothing assurance that I should have no difficulty in making good my promise.

I accordingly called upon the lively young gentleman who, two years before, had indulged in those little freaks at my expense. With diplomatic ceremony and circumlocution, I introduced the object of my visit, and wound up with an ultimatum to this effect: "There must either be a frank apology for past indignities, or he must accompany me, each with a friend, to some suitable spot, and there decide which was the better man."

If he had been called upon to expiate an offence committed before he was breeched, the young gentleman could not have been more astounded. Two years had made some change in our relative positions; I was now about his equal in size, and felt a comfortable sense of my superiority, so far as strength was concerned. My shoulders had broadened, and my muscles been developed, so as to present to the critical and interested observer a somewhat threatening appearance. Mr. Blank (who, by the way, was a good fellow in the main) professed that he had never intentionally given me offence,—that he, in fact, did not remember the circumstances to which I referred,—and finished by peremptorily declining my proposal.

When I reflected on the disparity between us in strength, which my two years' training had established, I felt that it would be cowardly for me to urge the matter further, especially as it was so long a time since he had given me cause of complaint. I have only to add, that we parted without a collision; and that, in my heart, I could not help thanking him for the service he had rendered in inciting me to the regimen which had resulted so beneficially to my health.

The impetus given to my gymnastic education by the little incident I have just related, was continued without abatement through my whole

college life. Gradually I acquired the reputation of being the strongest man in my class. I discovered that, with every day's development of my strength, there was an increase of my ability to resist and overcome all fleshy ailments, pains, and infirmities; a discovery which subsequent experience has so amply confirmed, that if I were called on to condense the proposition, which sums it up into a formula, it would be in these words:—*Strength is Health.*

Until I had renovated my bodily system by a faithful gymnastic training, I had been subject to nervousness, headache, indigestion, rush of blood to the head, and a weak circulation. It was torture to me to have to listen to the grating of a slate-pencil, the filing of a saw, or the scratching of glass; as I grew in strength, my nerves ceased to be impressible to such annoyances. Another good effect was to take away all appetite for any stimulating food or drink; although I had never applied "rebellious liquors" to my blood, I had been in the habit of taking a bowl of strong coffee morning and evening; now a craving for milk took the place of this want, and my coffee was gradually diminished to less than a fourth of what had been a customary indulgence.

At last arrived the eagerly looked-for day of release from college restrictions and labours. I graduated, and the question, so momentous in the history of all adolescents, "What shall I be?" addressed itself seriously to my mind. My father was desirous that I should choose medicine for a profession, and become the fourth physician, in lineal sequence, of my family on the paternal side.

Medicine! I cavilled at it a while, that I might bring out to view its grimmest and most discouraging aspect. The cares, trials, humiliations of a young physician, his months and years of uncompensated drudgery, passed in awful review before me. I thought of his toils among the poor and lowly, the vicious and depraved, of his broken sleep, the interruptions of his social ease; and then of the many scenes, so repugnant to delicate nerves, which he has to pass through—scenes of pain and insanity, of maimed and severed limbs, and all the eccentricities and fearful forms of disease. These considerations pressed with such weight on my mind that, for a time, my ancestral craft was in danger of being ignominiously rejected by me. Indeed, I began to think seriously of adopting a very different vocation. And here I will make a confession.

It is a familiar fact, that every college boy has to pass through an attack of the rhyming frenzy, as regularly as the child has to submit to measles and the whooping cough. A less frequent, but not less trying complaint, is that which manifests itself in a passion for the stage, and in an espousal of the delusion that one was born for a great actor. At any rate, this last was the type which my juvenile *malaise du cœur* finally assumed.

I have heard of a young gentleman who, whenever he was hard up for money, went to his nearest relatives, and threatened them with the publication of a volume of his original poems. This threat never failed to open the paternal purse. I do not know what the effect of my histrionic

aspirations would have had; but one fine day I found myself on my way to Rochester.

My *rôle* of dramatic characters was a very modest one for a beginner. It embraced *only* Richelieu, Bertram, Brutus, Lear, Richard, Shylock, Sir Giles Overreach, Hamlet, Othello, and Macbeth. My principal literary recreation for several years had been in studying these parts, and, as I knew them by heart, I did not doubt that a few rehearsals would put me in possession of the requisite stage business. And yet my familiarity with the theatres was very limited; I had never been behind the scenes. Once, with a class mate, I had penetrated, in the daytime, to the stage of Old Drury, and looked with awe on the boards once trodden by the elder Kean; but a growl from that august functionary, the prompter, sent us back in quick retreat, and I had never ventured again into those sacred precincts.

Arrived at Rochester—which place I had selected for my *début*, because of its remoteness from home—I looked in, the evening of my arrival, to see the performances at the theatre. The piece was a travestie of *Hamlet*, neither edifying nor amusing. A little of the *couleur de rose*, which had flushed my prospect, faded that night; but the few friends at home, to whom I had confided my plans, had so pertinaciously assured me that I, the most diffident man in the world, could never appear before an audience without letting them see I was shaky in the knees, that I resolved to do what I could to show my depreciators they were false prophets. And so I called on the manager, with a beating heart, as you may suppose. He was a small, quiet, gentlemanly person, whom I regret I cannot, consistently with truth, show up as a Crummles. But not even Dickens could have found any salient trait for ridicule in the man. Frankly and kindly he went into the statistics of the theatrical business, and showed me that, unless I was rich, and could afford to play for my own amusement, the stage held out few inducements; it was barren of promise to a young man anxious to make himself independent in the world.

I did not reply, "Perish the lucre," but said I would be content, in the early part of my career, to labour for reputation. He soon satisfied me that he could not give up his stage to an experimentalist, and I did not urge my suit, but bade Mr. S—— good morning, and a day or two afterwards started for ———.

While at Rochester, as I was passing through the principal street, I met a crowd assembled around a lifting machine. On making trial of it, I found I could lift four hundred and twenty pounds. I had then been for four years a gymnast, and I supposed my practice would have qualified me to make the crowd stare at my achievement. But the result was far from triumphant. I found, what many other gymnasts will find, that *main strength*, by which I mean the strength of the coalheaver and porter, cannot be acquired in the ordinary exercises of the gymnasium.

Returning home, I began the study of anatomy and physiology, and entered a medical school. The question of the extent to which human strength can be developed, had long been invested with a scientific interest

in my mind. One of the greatest lifting feats on authentic record is that of Thomas Topham, who in Bath-street, in Cold Bath-fields, London, on the 28th of May, 1741, lifted three hogsheads of water, said to weigh, with the connections, *eighteen hundred and thirty-six pounds.* In the performance of this feat Topham stood on a raised platform, his hands grasping a fixture on either side, and a broad strap over his shoulders communicating with the weight. An immense concourse of persons was assembled on the occasion—the performance having been announced as "in honour of Admiral Vernon," or rather "in commemoration of his taking Porto Bello with six ships only." Being a descendant myself from the Vernons of Haddon Hall, Derbyshire, I have reserved it for future genealogical inquiry to learn whether the Admiral was connected with that branch of the Vernons. If so, a somewhat remarkable coincidence is involved.

I now informed my father that I intended to go through a series of experiments in lifting. He was afraid I should injure myself, and expressly forbade any such practice on his premises. To gratify him, I gave up testing the question for a whole year.

But the desire re-awoke, and I had frequent arguments with my father in the endeavour to overcome his objections.

"Look at that man," he said to me one day, pointing to a large, stout individual in front of us; "you might practise lifting all your life, and never be able to lift as much as that big fellow."

"Let me construct a lifting apparatus in the back garden, and I will soon prove to you that you are mistaken," I replied.

Finding that I was bent on the experiment, he at length gave a reluctant consent.

I was now in my twenty-second year.

My first lifting apparatus was constructed in the following manner:—I first sank into the ground a hogshead, and into the hogshead a flour-barrel. Then I lowered to the bottom of the barrel a rope having at the end a round stick transversely balanced, about four inches in diameter, and fifteen inches long. A quantity of gravel, nearly sufficient to bury the stick, was then thrown into the barrel, some oblong stones were placed across the stick and across and between one another, and the interstices filled with smaller stones and gravel. When I had by this method about two-thirds filled the barrel, taking care to keep the axis of the rope in correspondence with the long axis of the barrel, I judged I had sufficient weight for a first trial. I now formed a loop in the end of the rope, over the top of the barrel, and put through it a piece of a broom handle about two feet long; and standing astride of the hogshead, and holding the handle with one hand before me and the other behind,—straightening my body, previously a little flexed,—with mouth closed, head up, chest out, and shoulders down, I succeeded in lifting the barrel, containing a weight of between four and five hundred pounds, some five or six inches from the bottom of the hogshead.

It was no great feat, after all, considering that I had been five years a gymnast. I found that I was inharmoniously developed in many points of

my frame—was perilously weak in the sides, between the shoulders, and at the back of the head. However, the day after this trial I succeeded in lifting the same weight with somewhat less difficulty. This induced me to add on a few pounds, and in three or four weeks I could lift between six and seven hundred. I now had the satisfaction of seeing the stout gentleman, whom a few months before my father had pointed out as possessed of a strength I could never attain to, introduced to an inspection of my apparatus. Through the blinds of a back parlour window I watched his movements, as, encouraged by Paterfamilias, he drew off his coat, moistened his hands, and undertook to lift up the big weight. An ignominious failure to start the barrel was the result. The stout gentleman tugged and pulled till he was so red in the face that apoplexy seemed imminent, and then he dejectedly gave it up. The reputation he had long enjoyed, of being one of the "strongest men about," must henceforth be a thing of the past, till it fades into a myth.

(*To be continued.*)

PEEP SHOWS.

I. HOW TO CONSTRUCT A DIORAMA.



OST boys are eager to construct a Peep Show of some kind or other, and their efforts occupy many pleasant hours during the long evenings of winter. In the absence, however, of some competent guide and judicious helping hand, the peep-shows constructed by our young friends are for the most part crude, clumsy, and inartistic. The same amount of care, ingenuity, and labour, if properly directed, would lead to very pleasing and satisfactory results. We propose to give some suggestions as to the construction of Cosmoramas, Panoramas, Dioramas, and similar pictorial illusions, commencing with the latter.

A favourite peep show among boys is *the Stage;* but we never saw one, even if "got up regardless of expense," that was not ridiculous when viewed critically. First, the drawing and colouring of the scenes was inaccurate and tawdry; secondly, the figures introduced upon the stage (the characters, in fact) were in most extravagant and preposterous attitudes, which, as they could not be varied, gave the figures the aspect of being stuck and petrified. Then the loading these figures with *tinsel* is in the worst possible taste, beside being utterly at variance with true principles of art. We cannot, therefore, recommend Our Boys to expend their money and ingenuity upon a stage; we have something better in store for them.

As it is impossible to give *action* to the animated beings that are intro-

duced in the pictures of a peep show, we must select such as are in a state of inaction or repose. We cannot represent a traveller *walking* along a road, but we can make him *sitting* on a stone or the trunk of a tree, taking rest, without inconsistency. So also a boy may be represented sitting on the parapet of a bridge angling, because that pursuit demands quiet; so also, if the scene admits of a flock of sheep reposing, the shepherd may be introduced tuning his pipe, adding to the illusion of the scene, rather than detracting from it.

The most interesting view lacks interest unless living creatures are introduced into it; therefore it is necessary to seek such subjects as may be employed without jarring upon our ideas of possibility, or marring the general effect of the picture.

A Diorama is a picture which presents its subject under a two-fold aspect: it is a double picture, or rather two pictures in one. This result is obtained by painting the subject on both sides of the canvas; one side, or the front, being viewed by *reflected* light, as we ordinarily view pictures and other objects; the other side being made visible by the light passing *through* the canvas,—it is, in fact, a transparency.

By this mode of treatment, the subject depicted on the canvas may be represented under widely different aspects. Thus, a landscape may appear under the ordinary effects of sunlight when viewed by reflected light, and as a moonlight view, or under the influence of a passing shower and thunder-storm, with rainbow, when viewed by transmitted light. Or the landscape may be first seen under the garb of spring, with its green foliage and blue sky, and afterwards shown with a wintry garb of snow and a gloomy sky.

An architectural subject, the interior of a cathedral, for instance, may be first shown as in daylight, and vacant, next as illuminated for a midnight mass, with throngs of people worshipping. Thus, it will be seen, that the diorama affords a wide scope for the exercise of ingenuity and taste, while its results are of a most pleasing and instructive character.

The effects described may be produced on any scale. The original dioramic pictures were between three and four thousand feet in superficial measure, and the illusion was so perfect, that it was difficult to believe it was produced by painting on a flat surface of canvas. The same effects, though not quite so startling, may be obtained by a carefully constructed portable diorama.

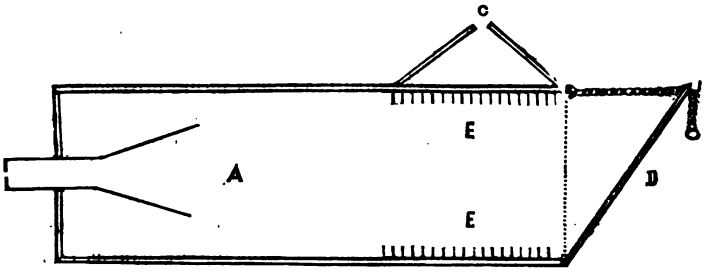
The portable diorama consists of a box, constructed so as to show a picture under varying influences of light. The box itself is a very simple affair, which any carpenter can put together; the greater amount of skill is demanded by the pictures, which require to be well drawn, and painted by one acquainted with the principles of the art of painting.

The pictures may be of any dimensions, and painted on fine linen or calico, without seams; they are strained upon light frames, of a wood that will not warp.

The size of the box must of course be governed by the size of the pictures. Its form is oblong. The frames E E on which the pictures are

stretched fit into grooves in this box, placed at a distance equal to two-thirds of the length of the box, from the end at which the eye is applied, when viewing them.

The eye-hole A is in a small tube, two or three inches in length, placed opposite the point of sight in the pictures, and expanding inwards, so as to



take in the whole picture. The tube turns as a screw in the hole in the end of the box, so as to render adjustment easy. A lens may be fitted to the tube, if desired.

In the top of the box, over the space occupied by the grooves in which the frames of the pictures slide, is a cover C C, which, when raised, admits light to the *front* of the picture only. The inside of this cover must be painted white, so as to reflect as much light as possible; and it is so poised by means of a weight and pulley, or other contrivance, that it may be maintained in any desired position when open.

The end of the box opposite the eye-hole is left open, so that the light may fall on the back of the picture: a moveable cover, sustained by weight and pulley D, is attached to this opening, which must also be painted white.

The interior of the box, the inside of the tube of the eye-piece, and the stretching frames, must be painted dull black, with turpentine and lamp-black, to which a few drops of oil are added.

The room in which the portable diorama is exhibited must be made quite dark, and the open end of the box must be placed quite close to a window pane, all the other panes of glass being darkened to exclude the light from the room.

Screens of white tissue paper, and of coloured silk, or coloured gelatine, or coloured glass, or all of them, are necessary, and aid in giving various effects to the pictures while being viewed.

The pictures are painted in transparent colours. In painting the front the white canvas or paper is left uncovered in parts representing the high lights; else if white paint were applied, being opaque, it would obstruct the passage of light when the picture came to be viewed as a transparency. And even in the shadows and other dark portions of the picture no opaque or body colours are introduced; for though they would look well by reflected light, they would appear as mere black irregular masses by transmitted light.

The day effect is generally painted in front, and the night effect at the

back of the canvas. While painting the front the artist works by reflected light; while painting the back, by transmitted light, because the effects intended to be produced can only thus be tested.

We will now suppose a picture ready for exhibition. The stretching frame is introduced into the grooves, and the cover at the back end of the box closed. The scene, a landscape, may be a view in Switzerland—time, early dawn: no light enters the box except by the top cover, which is first lifted just sufficient to render the front picture visible. The top of the box may be covered with a screen of bluish tint, to represent the effect of the grey of early morning. The admission of the light must be so managed that the greater illumination falls on the upper part of the picture, which will represent the snow-clad summits of the mountain peaks, the lower portion of the picture, representing the valleys, will receive less light at first.

The top cover being gradually lifted, and the coloured screen removed, the picture will be seen under the aspect of noon-day; after which the tints of the atmosphere will acquire an orange hue, which must be given by the introduction of appropriately tinted screens. A passing storm and shower may next be shown; then the storm clearing off, with the landscape illumined by the purple and golden rays of the setting sun. This change is effected by gradually closing the cover in the top of the box, during the thunder storm, and as gradually opening the cover at the back, which, with appropriately coloured screens will produce the proper sunset effect, the snowy tops of the mountains being tinged with red; and if the picture is skilfully painted, the sunset may be succeeded by twilight with the crescent moon in the west, changing the colour of the screens from red to blue.

It would be impossible to enumerate all the effects that may be produced by a skilful painter. Those described above will suggest many others. Endless variations of light and shade and tint may be obtained by management of the covers and screens, either separately or in combination. One cover may be left partially open, while the other remains shut; or one may be partially closed, and the other wholly open; or both may be partially closed; or the top may remain open while the end is shut, or the top shut while the end is open, according to the effect aimed at.

All the effects attempted in a picture must necessarily be carefully rehearsed before exhibition: the screens must also be conspicuously marked with a letter or number, and a memorandum of instructions drawn up for the management of each picture, to guide the exhibiter unerringly during the display. Provision may also be made for the imitation of thunder and lightning, rain and hail, and the noise of falling water, the whistling of the wind, &c.

To a young beginner, who does not possess sufficient skill to paint elaborate pictures, engravings of a certain class may be made subservient. For a diorama on a small scale the engravings of public buildings, monuments, &c., given in the *Builder*, offer an excellent resource.

In the diorama, it will be understood, the picture is contained on a

simple flat surface, of canvas or paper. In our next we shall describe the construction of a more elaborate scenic exhibition, in which the several portions of the landscape are built up of solid materials, and arranged like the set scenes of the stage. This peep show presents a very wide field for the exhibition of Our Boys' ingenuity and taste.

A BALLAD OF SIR JOHN FRANKLIN.

"The ice was here, the ice was there,
The ice was all around."—COLERIDGE.



"O, whither sail you, Sir John Franklin?"
Cried a whaler in Baffin's Bay;
"To know if between the land and the pole
I may find a broad sea-way."

"I charge you back, Sir John Franklin,
As you would live and thrive,
For between the land and the frozen pole,
No man may sail alive."

But lightly laughed the stout Sir John,
And spoke unto his men:
"Half England is wrong if he be right;
Bear off to westward then."

"O, whither sail you, brave Englishmen?"
Cried the little Esquimaux;
"Between your land and the polar star
My goodly vessels go."

"Come down, if you would journey there,"
The little Indian said;
"And change your cloth for fur clothing,
Your vessel for a sled."

But lightly laughed the stout Sir John,
And the crew laughed with him too:—
"A sailor to change from ship to sled,
I ween, were something new!"

All through the long, long polar day,
The vessels westward sped;
And wherever the sail of Sir John was blown,
The ice gave way and fled,—

Gave way with many a hollow groan,
And with many a surly roar,
But it murmured and threatened on every side,
And closed where he sailed before.

"Ho! see ye not, my merry men,
The broad and open sea?
Bethink ye what the whaler said,
Think of the little Indian's sled!"
The crew laughed out in glee.

"Sir John, Sir John, 'tis bitter cold,
The scud drives on the breeze,
The ice comes looming from the north,
The very sunbeams freeze."

"Bright summer goes, dark winter comes—
We cannot rule the year;
But long ere summer's sun goes down,
On yonder sea we'll steer."

The dripping icebergs dipped and rose,
And floundered down the gale;
The ships were staid, the yards were manned,
And furled the useless sail.

"The summer's gone,—the winter's come,—
We sail not on yonder sea:
Why sail we not, Sir John Franklin?"—
A silent man was he.

"The summer goes, the winter comes,
We cannot rule the year:
I ween, we cannot rule the ways,
Sir John, wherein we'd steer.

The cruel ice came floating on,
And closed beneath the lee,
Till the thick'ning waters dash'd no more;
'Twas ice around, behind, before,—
My God! there is no sea!

"What think you of the whaler now?
What of the Esquimaux?
A sled were better than a ship,
To cruise through ice and snow."

Down sank the baleful crimson sun,
The northern light came out,
And glared upon the ice-bound ships,
And shook its spears about.

The snow came down, storm breeding storm,
And on the deck was laid,
Till the weary sailor, sick at heart,
Sank down beside his spade.

"Sir John, the night is black and long,
The hissing wind is bleak;
The hard, green ice as strong as death:—
I prithee, Captain, speak!"

The night is neither bright nor short,
The singing breeze is cold;
The ice is not so strong as hope,—
The heart of man is bold!

What hope can scale this icy wall,
High over the main flag-staff?
Above the ridges the wolf and bear
Look down, with a patient, settled stare,
Look down on us and laugh.

The summer went, the winter came—
We could not rule the year,
But summer will melt the ice again,
And open a path to the sunny main,
Whereon our ships shall steer.

The winter went, the summer went,
The winter came around;
But the hard, green ice was strong as death,
And the voice of hope sank to a breath,
Yet caught at every sound.

"Hark! heard you not the noise of guns?—
And there, and there, again?
'Tis some uneasy iceberg's roar,
As he turns in the frozen main.

"Hurra! hurra! the Esquimaux
Across the ice-fields steal:
God give them grace for their charity!—
Ye pray for the silly seal.

"Sir John, where are the English fields,
And where are the English trees,
And where are the little English flowers,
That open in the breeze?"

"Be still, be still, my brave sailors!
You shall see the fields again,
And smell the scent of the opening flowers,
The grass, and the waving grain."

"O! when shall I see my orphan child?
My Mary waits for me.
O! when shall I see my old mother,
And pray at her trembling knee?"

"Be still, be still, my brave sailors!
Think not such thoughts again."
But a tear froze slowly on his cheek;
He thought of Lady Jane.

Ah! bitter, bitter grows the cold,
The ice grows more and more;
More settled stare the wolf and bear,
More patient than before.

"O! think you, good Sir John Franklin,
We'll ever see the land?
'Twas cruel to send us here to starve,
Without a helping hand.

"'Twas cruel, Sir John, to send us here,
So far from help or home,
To starve and freeze on this lonely sea:
I ween, the Lords of the Admiralty
Would rather send than come."

"O! whether we starve to death alone,
Or sail to our own country,
We have done what man has never done—
The truth is founded, the secret won—
We passed the Northern Sea!"

GEO. H. BOKER.

WONDERFUL CHARACTERS.

BLIND TOM.

Only a germ in the withered flower,
That the rain will bring out—sometime.

SOMETIME in the year 1850, a tobacco-planter in Southern Georgia (Perry H. Oliver by name) bought a "likely" negro woman with some other field hands. She was stout, tough-muscled, willing, promised to be a remunerative servant; her baby, however, a boy a few months old, was only thrown in as a make-weight to the bargain, or rather because Mr. Oliver would not consent to separate mother and child. Charity only could have induced him to take the piccaninny, in fact; for he was but a lump of black flesh, born blind, and with the vacant grin of idiocy, they thought, already stamped on his face.

The two slaves were purchased from a trader; it has been impossible, therefore, for me to ascertain where Tom was born, or when. This idiot boy is only "Tom,"—"Blind Tom," they call him with a kind of cadence always, being proud and fond of him; and yet, nothing but Tom. That is pitiful. Such a mushroom growth,—unkinned, unexpected, not hoped for, for generations, owning no name to purify, and honour, and give away when he is dead. His mother, at work to-day in the Oliver plantations, can never comprehend why her boy is famous: this gift of God to him means nothing to her. Nothing to him, either, which is saddest of all; he is unconscious, wears his crown as an idiot might. Whose fault is that? Deeper than slavery the evil lies.

Mr. Oliver did his duty well to the boy, being an observant and thoroughly kind master. The plantation was large, heartsome, faced the sun, swarmed with little black urchins, with plenty to eat and nothing to do.

All that Tom required, as he fattened out of babyhood into boyhood, was

a room in which to be warm, on the grass patch, or by the kitchen fires; to be stupid, and flabbid, and sleepy,—kicked and petted alternately by the other hands. He had a habit of crawling up on the porches and verandas of the mansion, and squatting there in the sun, waiting for a kind word or touch from those who went in and out. He seldom failed to receive it; so Tom, through his very helplessness, came to be a sort of pet in the family; a playmate, occasionally, of Mr. Oliver's own infant children.

The boy, creeping about, day after day in the hot light, was as repugnant an object as the lizards in the neighbouring swamp, and promised to be of as little use to his master. He was of the lowest negro type, from which only field-hands can be made,—coal black, with protruding heels, the ape-jaw, blubber-lips constantly open, the sightless eyes closed, and the head thrown far back on the shoulders, lying on the back, in fact, a habit which he still retains, and which adds to the imbecile character of the face.

Until he was seven years old Tom was regarded on the plantation as an idiot, not unjustly: for at the present time his judgment and reason rank but as those of a child four years old. He showed a dog-like affection for some members of the household,—a son of Oliver's especially,—and a keen nervous sensitiveness to the slightest blame or praise from them,—possessed, too, a low animal irritability of temper, giving way to inarticulate yelps of passion when provoked.

That is all, so far; we find no other outgrowth of intellect or soul from the boy: just the same record of thousands of imbecile negro children. Generations of heathendom and slavery have dredged the inherited brains and temperaments of such children tolerably clear of all traces of power or purity,—palsied the brain, brutalized the nature. Tom, apparently, fared no better than his fellows.

It was not until 1857 that those phenomenal powers, latent in the boy, were suddenly developed, which stamped him the anomaly he is to-day.

One night, sometime in the summer of that year, Mr. Oliver's family were wakened by the sound of music in the drawing room; not only the simple airs, but the most difficult exercises usually played by his daughters, were repeated again and again; the touch of the musician being timid, but singularly true and delicate. Going down, they found Tom, who had been left asleep in the hall, seated at the piano, in an ecstasy of delight, breaking out at the end of each successive fugue into shouts of laughter, kicking his heels and clapping his hands. This was the first time he had touched the piano.

Naturally, Tom became a nine days' wonder on the plantation. He was brought in as an after-dinner's amusement: visitors asked for him as the show of the place. There was hardly a conception, however, in the minds of those who heard him, of how deep the cause for wonder lay. The planters' wives and daughters of the neighbourhood were not people who would be apt to comprehend music as a science, or to use it as a language; they only saw in the little negro, therefore, a remarkable facility for repeating the airs they drummed on their pianos,—in a different manner from theirs,

it is true,—which bewildered them. They noticed, too, that however the child's fingers fell on the keys, cadences followed, broken, wandering, yet of startling beauty and pathos. The house-servants, looking through the open doors at the little black figure perched up before the instrument, while unknown, wild harmony, drifted through the evening air, had a better conception of him. He was possessed; some ghost spoke through him! which is a fair enough definition for Georgian slaves to offer.

Mr. Oliver, as we said, was indulgent. Tom was allowed to have constant access to the piano; in truth, he could not live without it; when deprived of music now, actual physical debility followed: the gnawing Something had found its food at last. No attempt was made, however, to give him any scientific musical teaching: nor—I wish it distinctly borne in mind—has he ever at any time received such instruction.

The planter began to wonder what kind of a creature this was which he had bought, flesh and soul. In what part of the unsightly baby-carcase had been stowed away these old airs, forgotten by every one else, and some of them never heard by the child but once, but which he now reproduced, every note intact, and with whatever quirk or quiddity of style belonged to the person who originally had sung or played them? Stranger still, the harmonies which he had never heard, had learned from no man. The sluggish breath of the old house, being enchanted, grew into quaint and delicate whims of music, never the same, changing every day. Never glad; uncertain, sad minors always, vexing the content of the hearer,—one inarticulate, unanswered question of pain in all, making them one. Even the vulgarest listener was troubled, hardly knowing why—how sorry Tom's music was!

At last the time came when the door was to be opened, when some listener, not vulgar, recognising the child as God made him, induced his master to remove him from the plantation. Something ought to be done for him; the world ought not to be cheated of this pleasure; besides—the money that could be made! So Mr. Oliver, with a kindly feeling for Tom, proud, too, of this agreeable monster which his plantation had grown, and sensible that it was a more fruitful source of revenue than tobacco fields, set out with the boy, literally to seek their fortune.

The first exhibition of him, I think, was given at Savannah, in Georgia; thence he was taken to Charleston, Richmond, and to all the principal cities and towns of the Southern States.

This was in 1858. From that time Tom lived constantly an open life, petted, feted, his real talent befogged by exaggeration, and so pampered and coddled, that one might suppose the only purpose was to corrupt and wear it out. For this reason, this statement is purposely guarded, restricted to plain, known facts.

No sooner had Tom been brought before the public than the pretensions put forth by his master commanded the scrutiny of both scientific and musical sceptics. His capacities were subjected to rigorous tests. Fortunately for the boy; for so tried, harshly it is true, yet skilfully, they not

only bore the trial, but acknowledged the touch as skilful; every day new powers were developed, until he reached his limit, beyond which it is probable he will never pass. That limit, however, establishes him as an anomaly in musical science.

Physically, and in animal temperament, this negro ranks next to the lowest Guinea type; with strong appetites and gross bodily health, except in one particular, which will be mentioned hereafter. In the every-day apparent intellect, in reason or judgment, he is but one degree above an idiot,—incapable of comprehending the simplest conversation on ordinary topics, amused or enraged with trifles such as would affect a child of three years old. On the other side, his affections are alive, even vehement, delicate in their instinct as a dog's or an infant's; he will detect the step of any one dear to him in a crowd, and burst into tears if spoken to unkindly.

His memory is so accurate that he can repeat, without the loss of a syllable, a discourse of fifteen minutes in length, of which he does not understand a word. Songs, too, in French or German, after a single hearing, he renders not only literally in words, but in notes, style, and expresssion. His voice, however, is discordant, and of small compass.

In music, this boy of twelve years, born blind, utterly ignorant of a note, ignorant of every phase of so-called musical science, interprets severely classical compositions with a clearness of conception in which he excels, and a skill of mechanism equal to that of most second-rate artists. His concerts usually include any themes selected by the audience from the higher grades of Italian and German opera. His comprehension of the meaning of music, as a prophetic or historical voice, which few souls utter, and fewer understand, is clear and vivid; he renders it thus, with whatever mastery of the mere material part he may possess, fingering, dramatic effects, etc., these are but means to him, not an end, as with most artists. One could fancy that Tom was never traitor to the soul or intent of the theme. What God or Satan meant to say by this or that harmony, what the soul of one man cried aloud to another in it, this boy knows, and is to that a faithful witness. His deaf uninstructed soul has never been tampered with by art-critics who know the body well enough of music, but nothing of the living, spiritual creature within. The world is full of these vulgar souls that palter with Eternal Nature and the Eternal Arts, blind to the word who dwells among us therein. Tom, or the dæmon in Tom, was not one of them.

With regard to his command of the instrument two points have been especially noted by musicians; the unusual frequency of occurrence of *tours de force* in his playing, and the scientific precision of his manner of touch. For example, in a progression of augmented chords, his mode of fingering is invariably that of the schools, not that which would seem most natural to a blind child never taught to place a finger. Even when seated with with his back to the piano, and made to play in that position (a favourite feat in his concerts), the touch is always scientifically accurate.

The peculiar power which Tom possesses, however, is one which requires

no scientific knowledge of music in his audiences to appreciate. Placed at the instrument with any musician, he plays a perfect bass accompaniment to the treble of music *heard for the first time as he plays.* Then taking the seat vacated by the other performer, he instantly gives the entire piece, intact in brilliancy and symmetry, not a note misplaced or lost.

The selections of music by which this power of Tom's was tested, were sometimes fourteen and sixteen pages in length. On one occasion, at an exhibition at the President's residence at Washington, after a long concert he was tried with two pieces, one thirteen, the other twenty pages long, and was successful.

We know of no parallel case to this in musical history. One of the most remarkable manifestations of Mozart's infant genius, is that at the age of nine he was required to give an accompaniment to an aria which he had never heard before, and without notes. There were false accords in the first attempt, but the second was pure. When the music to which Tom plays *secondo* is strictly classical, he sometimes balks for an instant in passages: to do otherwise would imply a creative power equal to that of the master composer; but when any chordant harmony runs through it (on which the glowing Negro soul can seize), there are no "false accords," as with the infant Mozart. I wish to draw especial attention to this power of the boy, not only because it is, so far as I know, unmatched in the development of any musical talent, but because, considered in the context of his entire intellectual structure, it involves a curious problem. The mere repetition of music heard but once, even when, as in Tom's case, it is given with such incredible fidelity, and after the lapse of years, demands only a command of mechanical skill, and an abnormal condition of the power of memory; but to play *secondo* to music never heard or seen, implies the comprehension of the full drift of the symphony in its current,—a capacity to create, in fact. Yet such attempts as Tom has made to dictate music for publication do not sustain any such inference. They are only a few light marches, gallops, &c., simple and plaintive enough, but with easily detected traces of remembered harmonies: very different from the strange, weird improvisations of every day. One would fancy that the mere attempt to bring this mysterious genius within him in bodily presence before the outer world woke, too, the idiotic nature to utter its reproachful, unable cry. Nor is this the only bar by which poor Tom's soul is put in mind of its foul, bestial prison. After any too prolonged effort, such as those I have alluded to, his whole bodily frame gives way, and a complete exhaustion of the brain follows, accompanied with epileptic spasms. The trial at the President's house, above mentioned, was successful, but was followed by days of prostration and illness.

Being a slave, Tom was never taken into a Free State; for the same reason his master refused advantageous offers from European managers. The highest points North at which his concerts were given were Baltimore and the upper Virginian towns. I heard him some time in 1860. He remained a week or two in the town, playing every night.

The concerts were unique enough. They were given in a great barn of a room, gaudy with hot, soot-stained frescoes, chandeliers, and walls spattered with tinsel. The audience was large, always: such as a provincial town affords; not the purest bench of musical criticism before which to bring poor Tom. Beaux and belles, siftings of old country families, whose grandfathers trapped and traded and married with the Indians,—the savage thickening of whose blood told itself in high cheek-bones, flashing jewelry, champagne-bibbing, a comprehension of the tom-tom music of schottisches and polkas: money-made men and their wives, cooped up by respectability, taking concerts when they were given in town, taking the Springs or the seaside in summer, taking the pork-trade in winter,—all according to programme: the *débris* of a town, the roughs, the boys, and little children. Tom was nearly as well worth a shilling as the Christy minstrels: here and there a pair of reserved, homesick eyes, a peculiar reticent face, some whey skinned ward-teachers, perhaps, or some German cobblers, but hints of a hungry soul, to whom Beethoven and Mendelssohn knew how to preach an unerring gospel.

The stage was broad, planked, with a drop-curtain behind; the Doge of Venice marrying the sea, I believe; in front, a piano and a chair.

Presently, Mr. Oliver, a good-natured looking man (one thought of that) came forward, leading and coaxing along a little black boy, dressed in white linen, somewhat fat and stubborn in build. Tom was not in a good humour that night: the evening before he had refused to play altogether: so his master perspired anxiously before he could get him placed in order before the audience, and repeat his own little speech, which sounded like a Georgia after-dinner gossip. The boy's head, as I said, rested on his back, his mouth wide open constantly; his great blubber lips and shining teeth, therefore, were all you saw when he faced you. He required to be petted and bribed like any other weak-minded child. The concert was a mixture of music, whining, coaxing, and promised candy and cake. He seated himself at last before the piano, a full half yard distant, stretching out his arms full length, like an ape clawing for food;—his feet, when not on the pedals, sprawling and twisting incessantly,—answering some joke of his master's, with a loud "Yha! yha!" Nothing indexes the brain like the laugh; this was idiotic.

"Now, Tom, boy, something we like from Rossini."

The head fell further back, the claws began to work, and those of his harmonies which you would have chosen as the purest exponents of passion began to float through the room. Selections from Weber, Beethoven, and other composers followed. At the close of each piece Tom, without waiting for the audience, would himself applaud violently, kicking, clapping, and turning always to his master for the approving pat on the head. Songs, recitations, such as I have described, filled up the first part of the evening; then a musician from the audience went upon the stage to put the boy's powers to the final test. Songs and intricate symphonies were given, which it was most improbable the boy could ever have heard. He remained

standing, utterly motionless, until they were finished, and for a moment or two after; then, seating himself, gave them without missing a note. Other pieces followed, more difficult, in which he played the bass accompaniment in the manner I have described, repeating instantly the treble.

The child looked dull and wearied during this part of the performance; and his master perceiving it, announced the exhibition closed, when the musician (who was a citizen of the town, by the by) drew out a thick roll of music, which he explained to be a fantasia of his own composition, never published.

"*This* it was impossible the boy could have heard; there could be no trick of memory in this: and on this trial" (triumphantly) "Tom would fail."

The manuscript was some fourteen pages long,—variations on an inanimate theme. Mr. Oliver refused to submit the boy's brain to so cruel a test; some of the audience, even, interfered, but the musician insisted, and took his place. Tom sat beside him, his head rolling nervously from side to side, struck the opening cadence, and then from the first note to the last gave the *secondo* triumphantly. Jumping up, he fairly shoved the musician from his seat, and proceeded to play the treble with more brilliancy and power than its composer. When he struck the last chord, he sprang up, yelling with delight.

"Um's got him, massa! um's got him!" cheering and rolling about the stage.

The cheers of the audience—for the boys especially did not wait to clap—excited Tom still more. It was an hour before his master could calm his hysterical agitation.

That feature of the concerts which was the most painful to witness I have not touched upon,—the moments when his master was talking, and Tom was left to himself; when a weary despair seemed to settle down on that distorted face, and the stubby little black fingers, wandering over the keys, spoke for Tom's own caged soul within. Never, by any chance, a merry childish laugh of music in the broken cadences,—tender or wild, a defiant outcry, a tired sigh breaking down into silence. Whatever wearied voice it took, the same bitter, hopeless soul spoke through all:—

"Bless me, even me, also, O my Father!"—

a something that took all the pain and pathos of the world into its weak, pitiful wail.

Some beautiful caged spirit, one could not know, struggled for breath under that brutish form and idiotic brain. I wonder when it will be free! Not in this life: the prison bars are too heavy.

But you cannot help Tom, either. The country was desolated by civil war. Slavery is abolished, and Tom and his master have disappeared from our ken, perhaps never to reappear.

But, gentle reader, in your own kitchen, in your own back alley, there are spirits as beautiful, caged in forms as bestial, that you *could* set free, if you pleased. I speak for them; for I know that they are more to be pitied than Tom. They have no power of utterance, for they are dumb.

Such is the moral of my story.

GAMES AND SPORTS.

I. BASE BALL.

THE truly national English game is cricket: no other people have yet adopted it. In the United States and other countries to which Englishmen have emigrated in sufficient numbers to enable them to form national clubs and societies among themselves, they have frequently established cricket-clubs, while the natives have looked on in astonishment and commiseration, to think that any one should work so hard for amusement. They could not see the good training it afforded the players, invigorating the health, strengthening the muscles, and developing address, strength, and quickness of eye.

No game that we are acquainted with possesses so many good features to recommend it as cricket; and we are much gratified to learn that cricket-clubs are being established in France, where in fact they are more needed than amongst ourselves, as there are so few games in vogue involving great muscular exercise.

The attempts made to naturalize this game in the United States have failed: it did not exactly suit the temperament of a people in whom nerve prevails over muscle, but they have adopted instead a good substitute, namely, Base-Ball, submitted to certain modifications and improvements which assimilate it very nearly to cricket, over which game it is considered to possess an advantage in respect to the greater rapidity with which the innings alternate, and the opportunities enjoyed by each side for a temporary rest from the labours of fielding.

DESCRIPTION OF THE GAME.

The base-ball ground should be a level area of fine turf, about 600 feet in length by 400 in breadth, at one end of which a square of 90 feet is marked out. At the lower angle of this, designated as the *home-base*, is fixed an iron plate, while the other angles are indicated by white canvas bags filled with sawdust and attached to posts sunk in the ground.

Nine players constitute a side, one side taking the *bat* the other the *field*. The batsman stands at the home-base, having the pitcher opposite to him, at the distance of 45 feet, and the catcher behind. A player is also stationed at or near each of the three canvas bags, known as the 1st, 2nd, and 3rd bases, and which are respectively on the right—opposite to—and on the left of the batsman. Beside these, there is a short field behind the pitcher, and a right, centre, and left field at a considerable distance in the rear of the 2nd base, the duties of all of whom are to catch or stop the balls and return them to the pitcher or basemen. A *captain*, who is generally the catcher, assigns the places of the players on his side and directs the game.

When the batsman has struck the ball, or has struck at and missed the ball three times, he starts for the first base, and is succeeded by player

after player until three are put out, when the side occupying the field take their places at the bat, and in like manner play their innings. The methods of putting the batsman out are indicated in the rules given below. When he succeeds in reaching the home-base untouched by a ball in (not thrown from) the hands of an adversary, and after successively touching the 1st, 2nd, and 3rd bases, he is entitled to score one run. Nine innings are played on each side, and the party making the greatest number of runs wins the game.

The bat in common use is a round stick of ash, or other hard wood, or of white pine or willow, from 30 to 40 inches in length, and from 2 to 2½ inches in thickness at the lower end, whence it tapers gradually to the handle. Players adopt different styles of batting, some holding the bat inclined over the shoulder, and others hitting from below as in cricket, while many attempt modifications of either method. As the ball is pitched, never thrown, to the batsman, the habit of striking from below would seem to be preferable, and for the same reason it is better to use a light bat which is easily wielded, and can enable the batsman to meet the rapid pitching usually practised.

The dress of a base-ball player should consist of a light flannel shirt and trousers, a flannel cap with a projecting visor of white enamelled leather, and canvas shoes with spiked soles.

RULES.

1. *The Ball.*—The ball must weigh not less than 5¼ nor more than 6 ounces, avoirdupois. It must measure not less than 9¾ nor more than 10 inches in circumference. It must be composed of India-rubber and yarn, and covered with leather, and in all match games shall be furnished by the challenging club, and become the property of the winning club as a trophy of victory.

2. *The Bat.*—The bat must be round, and must not exceed 2½ inches in diameter in the thickest part. It must be made of wood, and may be of any length to suit the striker.

3. *The Bases.*—The bases must be four in number, placed at equal distances from each other, and securely fastened upon the four corners of a square, whose sides are respectively thirty yards. They must be so constructed as to be distinctly seen by the umpire, and must cover a space equal to one square foot of surface. The 1st, 2nd, and 3rd bases shall be canvas bags, painted white, and filled with sand and sawdust; the home-base and pitcher's point to be each marked by a flat circular iron plate, painted or enamelled white.

4. *The Home-Base.*—The base from which the ball is struck shall be designated the *home-base*, and must be directly opposite to the 2nd base; the 1st base must always be that upon the right hand, and the 3rd base upon the left hand side of the striker, when occupying his position at the home-base.

5. *The Pitcher.*—The pitcher's position shall be designated by a line four

yards in length, drawn at right angles to a line from home to the 2nd base, having its centre upon that line, at a fixed iron plate, placed at a point fifteen yards distant from the home-base. The pitcher must deliver the ball as near as possible over the centre of the home-base, and for the striker.

6. *Pitching.*—The ball must be pitched, not jerked nor thrown to the bat; and whenever the pitcher draws back his hand, or moves with the apparent purpose or pretension to deliver the ball, he shall so deliver it, and he must have neither foot in advance of the line at the time of delivering the ball; and if he fails in either of these particulars, then it shall be declared a *balk.*

7. *A balk.*—When a balk is made by the pitcher, every player running the bases is entitled to one base, without being put out.

8. *Foul and Fair.*—If the ball, from the stroke of the bat, is caught behind the range of the home and the first base, or home and the third base, without having touched the ground, or first touches the ground behind those bases, it shall be termed *foul,* and must be so declared by the umpire, unasked. If the ball first touches the ground, or is caught without having touched the ground, either upon or in front of the range of those bases, it shall be considered *fair.*

9.—A player making the home base shall be entitled to score one run.

10.—If three balls are struck at and missed, and the last one is not caught, either flying or upon the first bound, it shall be considered fair, and the striker must attempt to make his run.

11.—The striker is out if a foul ball is caught, either before touching the ground or upon the first bound;

12.—Or if three balls are struck at and missed, and the last is caught, either before touching the ground or upon the first bound;

13.—Or if a fair ball is struck, and the ball is caught either without having touched the ground, or upon the first bound;

14.—Or if a fair ball is struck, and the ball is held by an adversary on the first base, before the striker touches that base.

15.—Any player running the bases is out, if at any time he is touched by the ball while in play in the hands of an adversary, without some part of his person being on a base.

16.—No ace nor base can be made on a foul ball, nor when a fair ball has been caught without having touched the ground; and the ball shall, in the former instance, be considered dead and not in play until it shall first have been settled in the hands of the pitcher; in either case the players running bases shall return to them, and may be put out in so returning in the same manner as the striker when running to the first base.

17. *Striker.*—The striker must stand on a line drawn through the centre of the home-base, not exceeding in length three feet from either side thereof, and parallel with the line occupied by the pitcher. He shall be considered the striker until he has made the first base. Players must strike in regular rotation, and, after the first innings is played, the turn commences with the player who stands on the list next to the one who lost the third hand.

18.—Players must make their bases in the order of striking; and when

a fair ball is struck, and not caught flying (or at the first bound), the first base must be vacated, as also the second and third bases, if they are occupied at the same time. Players may be put out on any base, under these circumstances, in the same manner as the striker when running to the first base.

19.—Players running the bases must, so far as possible, keep upon the direct line between the bases; and should any player run three feet out of this line, for the purpose of avoiding the ball in the hands of an adversary, he shall be declared *out*.

20.—Any player who shall intentionally prevent an adversary from catching or fielding the ball shall be declared out.

21.—If the player is prevented from making a base by the intentional obstruction of an adversary, he shall be entitled to that base, and not be put out.

22.—If an adversary stops the ball with his hat or cap, or takes it from the hands of a party not engaged in the game, no player can be put out unless the ball shall first have been settled in the hands of the pitcher.

23.—If a ball from the stroke of a bat is held under any other circumstances than as enumerated in Rule 22, and without having touched the ground more than once, the striker is out.

24.—If two hands are already out, no player running home at the time a ball is struck can make an ace if the striker is put out.

25.—An innings must be concluded at the time the third hand is put out.

26. *The Game.*—The game shall consist of nine innings to each side, when, should the number of runs be equal, the play shall be continued until a majority of runs, upon an equal number of innings, shall be declared, which shall conclude the game.

27. *A Full Field.*—In playing all matches nine players from each club shall constitute a full field, and they must have been regular members of the club which they represent, and of no other club, for thirty days prior to the match. No change or substitution shall be made after the game has been commenced, unless for reason of illness or injury. Position of players and choice of innings shall be determined by captains previously appointed for that purpose by the respective clubs.

28. *The Umpire*—The umpire shall take care that the regulations respecting balls, bats, bases, and the pitcher's and the striker's positions are strictly observed. He shall keep a record of the game in a book prepared for the purpose; he shall be the judge of fair and unfair play, and shall determine all disputes and differences which may occur during the game; he shall take especial care to declare all foul balls and balks, immediately upon their occurrence, unasked, and in a distinct and audible manner.

29. *The Scorers.*—In all matches the umpire shall be selected by the captains of the respective sides, and shall perform all the duties enumerated in Rule 28, except recording the games, which shall be done by two scorers, one of whom shall be appointed by each of the contending clubs.

30. *Betting.*—No person engaged in a match, either as umpire, scorer, or

player, shall be, either directly or indirectly, interested in any bet upon the game. Neither umpire, scorer, nor player shall be changed during a match, unless with the consent of both parties (except for a violation of this law), as provided in Rule 27, and then the umpire may dismiss any transgressor.

31.—The umpire in any match shall determine when play shall be suspended; and if the game cannot be concluded, it shall be decided by the last even innings, provided five innings have been played, and the party having the greatest number of runs shall be declared the winner.

32.—Clubs may adopt such rules respecting balls knocked beyond or outside of the bounds of the field as the circumstances of the ground may demand; and these rules shall govern all matches played upon the ground, provided that they are distinctly made known to every player and umpire previous to the commencement of the game.

33.—No person shall be permitted to approach or speak with the umpire, scorers, or players, or in any manner to interrupt or interfere during the progress of the game, unless by special request of the umpire.

34.—No person shall be permitted to act as umpire or scorer in any match, unless he shall be a member of a base-ball club, governed by these rules.

35.—Whenever a match shall have been determined upon between two clubs, play shall be called at the exact hour appointed; and should either party fail to produce their players within fifteen minutes thereafter, the party so failing shall admit *a defeat.*

36.—No person who shall be in arrears to any other club, or who shall at any time receive compensation for his services as a player, shall be competent to play in any match.

37.—Should a striker stand at the bat without striking at good balls repeatedly pitched to him, for the apparent purpose of delaying the game, or of giving advantage to a player, the umpire, after warning him, shall call one strike, and if he persist in such action, two and three strikes. When three strikes are called, he shall be subject to the same rules as if he had struck at three fair balls.

38.—Every match hereafter made shall be decided by a single game, unless otherwise mutually agreed upon by the contesting clubs.

THE STORY OF ABOU CASSEM'S OLD SLIPPERS.

ABOU CASSEM was an old merchant of Bagdad, notorious for his avarice. His coffers were full of gold, but he was very careful never to take any out. He lived like a beggar: the oldest inhabitants had never seen him wear but one suit of clothes, and such clothes! A gabardine, which, with its lining, had lost all traces of its original colour; a shapeless turban, as full of holes as the sky is full of stars. But his slippers, they had been soled, and heeled, and patched so often by all the old cobblers of the city that they made every one laugh when he took them to be

repaired; their remarkable ugliness had even given rise to a proverb; and when any one wished to speak of an object particularly old, clumsy, inconvenient, and ugly, he would sum up by saying—"Just like Abou Cassem's slippers."

It happened one day that this old miser had craftily taken advantage of the necessities of a poor merchant, to buy of him, at a ruinous price, a certain quantity of elegant bottles of rose water, such as are used for ladies' toilet, and was so delighted at having made such a good bargain that he resolved to give himself a great treat: in fact, to commit some great extravagance! What should it be? Invite a relation to dinner? What pleasure would there be in that, when all his relations had such enormous appetites, that they would surely devour as much at a meal as would supply his table for a week? No! he would buy himself an ounce of the best Mocha coffee. But again he reflected, "What would be the good of that?" He had become so accustomed to chickory that he really liked it. After cogitating a long time, he concluded that the best thing he could do would be to take a bath, a thing he had not done for a very long time indeed.

So he repaired to the public bath; and while he was taking off his dirty, ragged garments, one of his relations gently remonstrated with him about his excessive parsimony; and ventured to hint that it was about time he should throw away his old slippers, which had made him the laughing stock of all Bagdad.

"I shall consider about it," replied Abou Cassem, growling. Then turning his back upon his adviser, he stepped into the water. Upon coming out of the bath he proceeded to put on his clothes, when he perceived a pair of new slippers lying near them. "Aha!" he thought to himself, "my cousin wished to give me an agreeable surprise;" whereupon he put the slippers on his feet, and went away.

But these new slippers were the property of a Cadi who had entered the bath soon after Abou Cassem, and also quitted it about the same time. He was greatly surprised when he missed his slippers; and while searching for them in every direction, in a dark corner he came across the hideous things that belonged to Abou Cassem. He recognised them instantly.

"What!" he exclaimed, "has that miserly old rascal had the impudence to steal my slippers? Ho, guards! pursue the wretch, and bring him before me!"

The guards rushed into the street, pursued Abou Cassem, and overtook him just as he was about opening the door of his house. They seized him, and marched him off to prison. It was in vain that he protested he had no intention of doing wrong: the opportunity of squeezing out some of the old miser's wealth was too favourable to be passed over, and he could not regain his liberty without paying a heavy fine.

Abou Cassem returned home in despair, and retiring to his chamber, he placed himself with folded arms before his slippers, the cause of his misfortunes, and after reproaching them in the bitterest terms, in a fit of wrath he seized them and threw them out of a window into the river Tigris, which flowed past his house.

Now, two or three days afterwards it happened that some fishermen, casting their nets into the river, felt something unusually heavy weigh them down. Full of hope, they expected a rich prize, such as a golden cup or vase, or casket full of gold or jewels. But how great their disappointment and disgust when, upon hauling up the seine, they discovered a frightful pair of old slippers, the great nails of which had torn their nets in several places. They knew at once to whom the slippers belonged: they could belong to no one but Abou Cassem. Furious with rage, they threw them into the open window of the miser's-dwelling. As ill-luck would have it, they fell upon the bottles of rose-water that Abou Cassem had bought such a bargain, and shivered them to pieces.

Abou Cassem hearing the crash, hastened to ascertain the cause of it, and with dismay saw floating in rose-water the fatal slippers, which, after causing him to be fined in a heavy penalty, had risen up from the bottom of the river to destroy his dearest treasure. Tearing his beard, he cried out, "Cursed that you are, I'll prevent you playing me such another trick." Then, taking the slippers into his garden, he dug a deep hole, and buried them in it.

But the miser's doings were observed by a neighbour, who was enjoying his afternoon's pipe on the roof of his house. He was an envious, gossiping fellow, and went and told his neighbours that he had seen Abou Cassem dig up a treasure in his garden. This news spread quickly, and soon reached the ears of the Governor. He sent for Abou Cassem, and threatened him with the bastinado if he did not give him a share of the treasure he had found.

Abou Cassem upon hearing this almost fainted with terror. He smote his breast, invoked the sacred name of the Prophet, and vowed that all he was doing in his garden was burying his slippers. But this denial only irritated the Governor, and he accused Abou Cassem of deceiving him. The poor man already felt, in imagination, the blows of the stick on his body; and feeling sure that it would be useless to contend any longer against the cupidity and power of the Governor, he consented to give him a considerable sum of money. He would as soon have given his own soul. But he promised himself that after this he would put an end to the accursed old slippers.

At dusk in the evening he went out at the city gate, and wandered far into the country. When he felt sure that no one could see him, he drew out his slippers from beneath his cloak, and threw them into an aqueduct that supplied the city of Bagdad with water. He stood some minutes looking into the stream, and it was with a feeling of great pleasure that he saw his two enemies sink beneath the water. With a light heart and quick step he returned to the city, and sought his pillow, fully persuaded that he had seen the last of them. Alas! the malicious slippers had not yet exhausted all their spite upon poor Abou Cassem.

Next morning the good wives of Bagdad repaired as usual to the public fountains to fill their pitchers; and great was their astonishment and dismay upon perceiving that no water flowed. A clamour soon arose; the *cause of* the disaster was discussed; engineers were summoned, and

hurried to the aqueduct; the pipes were examined, and it was discovered, after infinite trouble, that some foreign body had found its way into them, obstructed the flow of the water, which now ran to waste over the walls of the aqueduct, and deluged the country around.

The obstruction was fished up, and discovered to be Abou Cassem's old slippers!

Again denounced, arrested, and fined, the poor merchant was almost ruined. In one day he appeared to have grown ten years older. It was feared he would lose his senses, and even his life was despaired of.

Again alone with his persecutors, with that sinister calmness which betrays the last stage of despair, he thus apostrophized the fatal slippers:

"What shall I do with you now! To what fate shall I condemn you? Shall I cut you into a thousand pieces?—No; that would be only to multiply you into a thousand enemies. Only one course is open to me,—I will destroy you by fire—burn you to ashes!"

Furiously grasping the slippers in his trembling hands, he hastened towards the fire, when, perceiving that they were sodden wet from having lain all night in the water, he concluded that they would not burn. He therefore laid them on the wall of the parapet, to dry in the sun.

He had not left them there two minutes before a playful kitten came across the parapet from the adjoining house, and while putting its nose to one of the slippers, knocked the other off the parapet into the street, on the head of a woman who unfortunately happened at that moment to be passing.

The slippers were heavy, and the woman fell to the ground with a scream and a groan.

"Murder!" "Help!" cried the passers-by. In an instant a crowd assembled, inquiring, "Who is killed?" "Where is the villain?" Here was Abou Cassem's old slipper, and here was Abou Cassem's house; and there lay a woman, apparently dead. The instrument of her death, the slipper; the murderer, Abou Cassem. Such was the way the crowd reasoned; and, besieging his door, they threatened to take summary justice upon the unfortunate old man,—either impale him or burn him alive.

Thereupon the old man made a grand resolve: he begged the police to take him before the Cadi. Arrived there, he threw himself upon his knees, and laying the fatal slippers at the magistrate's feet, he exclaimed:

"Source of infinite wisdom! light of lights! O sublime cadi! you see before you two furies bent upon my destruction! I was rich,—they have beggared me! I was peaceful and happy,—they have destroyed my peace and shortened the days of my life! Issue a proclamation,—a proclamation informing all Bagdad that their future crimes, at least, shall not be attributed to me. But if you will not deign to grant me this favour, I have no longer any wish to live. I place my life in your hands: let me suffer death!"

At hearing this strange request, the Cadi could not repress a smile. He issued the proclamation, and ordered it to be posted in all the streets; and contented himself this time with reading Abou Cassem a lecture upon the inconvenience of wearing slippers an unreasonable time.

CORRESPONDENCE.

LETTERS BETWEEN HARRY IN TOWN AND BOB IN THE COUNTRY.

Oaklands Hall.

DEAR HARRY,—"Well, now am I in Arden, the more fool I: when I was at home I was in a better place." You remember those words of Touchstone's, in that pretty comedy of *As You Like It*, which we saw together in London, Harry, do you not? Well, I quote them because they express my feelings at the present moment. Here am I, banished to the country, and for what? To improve my health! as if I was not well enough while I was in London. I suppose they want to make a pork-butcher of me, since I am sent here to look after the pigs—and poultry. Don't laugh at me, Harry; how would you like it? It is so very dull: there is really nothing to see; and as for "rural sports," about which you raved so much, why there's nobody here to keep me company; and I don't see how you can have much sport all alone by yourself.

It is true, there's Dick, a good-natured fellow enough; but he has no time to play with me—he has always got something in hand to do, that "must be done," even if it's only scaring crows. It is true, there's Old Dobbin, "a very safe horse," that I may ride when he is not engaged; but that is so seldom that I have not had a chance yet to get on his broad back. I might go a-fishing, for there's a capital mill-stream here, where I can see the fish swimming by scores; but I did not bring my fishing-tackle with me. Perhaps, Harry, you will do me the favour to send it to me by James when he comes down. I wanted to go a bird's-nesting, but uncle would not allow me to do that; he said he would not have an egg, or a nest, or a feather touched, as he wanted more birds to eat up the worms and caterpillars, else they would devour his crops. "No," said he, "I am not going to allow my best friends to be hurt in any way;" and he will not even let me have a shot at an ugly old owl that hoots over the barn at night; nor will he allow the moles to be disturbed in their underground habitations. "I know my friends from my enemies," says uncle; "if you want any sport we will start an old fox to-morrow: I owe him a reckoning, for he stole a couple of my geese last week. Or we'll course a hare, Bob," says he; "that will put colour into your pale cheeks." So, Harry, I may see some sport yet.

I am sure I shall never like farming, it is such dirty work. It is not a bit of use having your shoes blacked here; in fact, they don't *black* them, they *grease* them! Think of that, Harry! And then your clothes so soon get spoiled: mine are so worn and ragged in getting through hedges and bushes, you would be quite ashamed of me, could you see me now: I suppose I am what is called a "ragamuffin." If I stay here, I must get a suit of fustian or velveteen, that's a fact, and keep my broadcloth coat to go to church in on Sundays.

What queer ways these country folks have, and how strangely they talk! I can't half understand what they say.

There's a capital orchard here, and the apples are first-rate. You might fill your pockets from one tree every day for a month, and they would not be missed. I forget how many bushels grow on a tree, but if I remember aright, it is enough to stock any shop in Covent Garden Market. I have made friends with the old gardener by giving him my four-bladed knife, and I have the run of the garden and my pick of the best fruit, and that I consider a great privilege. They don't exactly live upon apples, here, but they have them on the table at every meal: there's apple-sauce

with the goose and the pork; there's apple-jelly on our hot cakes instead of butter; and there's apple-dumplings—"them's the boys for me"—and I know how the apples get in, for I saw the cook make them and there's apple-tarts, and apple-pies, and apple-fritters, and apple everything. I begin to think, Harry, that there is some advantage in living in the country, because you get there so many good things for nothing, which in London you have to pay very dearly for. And oh! you get such an appetite! I suppose it's the fresh air. If you could see the bumpkin's feed, it would astonish you. Set a dozen of them down to a table covered with a smoking hot dinner—pork, pease pudding, and dumplings—and in a quarter of an hour the table is empty. "Hard work and fresh air," uncle says, "is good for digestion." Uncle has lent me a very nice dog, and I intend to take him out with me for a long ramble to-morrow. So no more at present from your affectionate friend and cousin,

BOB.

Berkeley Square.

DEAR COUSIN,—You should not grumble, Bob, but make the best of your luck. You are strange yet, and do not know what you have around you that will afford you enjoyment. I could grumble, as well as you, for I have to fag hard all day at my studies, and although there is plenty of amusement to be had here, I would be very glad to exchange some of them for the fresh air and good appetite you enjoy. I shall never want to kill another bird, now I have seen Madame Vandermeersch's wonderful performing birds, at the Polytechnic Institution. Such intelligent little creatures, they apppeared to understand everything said to them. What patience it must have required to teach them all their pretty tricks.

Did you ever see a giant, Bob? Well, you could see one now, if you were here—such a stunning fellow, eight feet high or more—a Chinese, a Celestial, a brother of the moon, and first-cousin to the sun; a son of Anak, a lofty fellow, with a "medium sized wife," and a dwarf for a contrasting companion. They make up a droll company; I sometimes think the Chinese were left out of Noah's Ark, they are so different in all the their ways to us poor barbarians. You have seen Tom Thumb, I know—well, Chang the Chinaman could put him in one of his boots, and then he would be lost to sight, "though to memory dear," as the motto says; and I think if he were to put you in his pocket, Bob, it would not make much difference in the "set of his coat," as our tailor says, for he wears his garments rather loose. This is no reflection on your size, Bob, for you are growing bigger every day.

If I were in the country, Bob, I tell you what I would do—I would thoroughly enjoy myself, and you are very foolish, if you don't. Now I shall tell you how I have spent my leisure time. Firstly, I went last Saturday to Twickenham, to see Mr. Twining's *Daily Life Museum*, which is a capital place to spend an afternoon in. It contains a little of everything useful. Building Materials, Furniture, Clothing, Fuel, Scientific Toys, Tools, &c. There's a "Sanitary Department," and specimens of Adulterated Articles, and a Library. Mr. Twining has got it all up at his own expense, and is doing a good deal of good, in making useful things better known. I shall send you a little book he has published, a Catalogue of this Museum, which I am sure you will find interesting. Show it to your uncle.

I have been to another Museum, which I think you have never visited, the Museum of Practical Geology, in connection with the School of Mines, in Jermyn Street, Piccadilly. There you see specimens of all the mineral productions of Great Britain, and the uses shown to which they are applied. There are building stones and marbles, cut

and polished, and fashioned into tables, chimney pieces, &c., the ores of all the metals, and the metals themselves converted into tools, weapons, utensils, &c.; geological sections and models, enamels, electrotypes, tesselated pavements, and no end of things. I was very much interested, and spent a long afternoon there, and I mean to go again soon. It is a nice quiet place, and is not crowded. So you can examine things comfortably.

I intend going the rounds of all the Museums in London, and I shall send you an account of what I see.

Christmas is coming, Bob, only think! I expect you will have a prime time in the country then; and if I can come down and join you, depend upon it I will. I hope it will be a good deep snow, and a hard frost, and then I will drive down in my sledge, which Captain Coram brought me from Canada. I think it will astonish your bumpkins, Bob, to see an open carriage without wheels, cutting through the snow, at the rate of fifteen miles an hour.

"Hark, to the merry sleigh-bells ringing."

I will bring my bear down too, if I don't sell him to Truefit for his grease. He seems to be growing melancholy of late, pining for his native pine-woods, I expect. I would send him back, if I could, for I do not approve of keeping wild creatures in confinement; with tame ones it is different, for they do not feel the loss of a liberty they never enjoyed.

As I intend to present myself for examination at the India House next July, I shall in the mean time work very hard, and try and improve my store of knowledge in every possible way. Frivolous amusements have no attraction for me; I leave them to be enjoyed by the drones. Reading, and lectures, and inspecting museums, manufactories, and similar places occupy nearly all my time. A trip to the Crystal Palace, now and then, by way of diversion, to see the flowers, and hear some good music. I want to go up in a balloon with Mr. Glaisher, and down in a diving bell with Mr. Pepper, and then I shall consider my education finished.

If you have got anything choice in the way of pigeons and poultry, send them up for exhibition at the next show. Of course uncle will send us the customary hamper. Have you tasted aunt's elderberry wine, or is it still kept in reserve for cordial on cold winter nights? I hope you have not got the *Rinderpest*, or any other cattle plague, in your neighbourhood. Beef will be a florin a pound here at Christmas, so says Cleaver, our fat butcher. Hoping to hear from you again soon, I remain, dear Bob, your affectionate cousin,

HARRY.

P.S.—Send us some of those apples.

Rugby, 23rd Oct., 1865.

To DR. PRIMROSE,

SIR,—I have read the advertisement of your "Boy's Wonder Book" with much pleasure, and am encouraged to hope that boys will now obtain a magazine fully deserving their support. I, for one, have been constantly disappointed with every boy's magazine I have seen, for though they have promised everything they have performed very little. I do not suppose, Sir, that you have forgotten the days when you were a boy, but feel sure that you will do for us boys what you would have liked done for you. And, Sir, if we are boys now, we hope and expect to become men pretty soon, and do not want to be reminded too often that we are *only* boys. What I want to say, Sir, is, that we boys will be much obliged to you if you will treat us as men, and not think it necessary to sweeten the mental food you present to us as the nurses do the pap for babies. We have a particular objection to sugared science; if knowledge is sometimes bitter and sour, we will take it as a medicine, not as pap, in the hope that it will do us good. Please to give us some good biographies, and oblige,

Your obedient servant, R. S.

Harrow on the Hill, 20th Oct., 1865.

To Dr. Primrose,

Sir,—When I leave school I intend to apply for a post under Government, in some office of the Civil Service. But, Sir, I am very much afraid I should not be able to pass an Examination without some good advice and assistance. I think there are probably many boys similarly situated; and Sir, if in your magazine you could give them a little help in this matter they would be very grateful, as would be, also,

Your most obedient servant, W. W.

Bedford, 21st Oct., 1865.

To Dr. Primrose,

Rev. Sir,—The Boy's Wonder Book is in my opinion a very good name for a boys' magazine, and I have ordered the first number of our bookseller. I shall write and let you know how I like it, and what our other boys think of it. Please to make it all *true*, if you can. I, for one, take more pleasure in a true story than in an invented one.

I remain, Sir,

Yours very respectfully, E. B.

EXERCISES FOR INGENUITY.

"All work and no play, makes Jack a dull boy," is a time-honoured maxim, very frequently quoted by way of asserting that boys must have some play to leaven their work with. In all labours, whether of the brain or the limbs, a time of weariness overtakes us, and we require rest, or relaxation, or recreation. To the weary brain or tired muscle sleep affords perfect rest; but the brain may be weary with the monotony of long study or exercise upon one theme, then absolute rest may not be so much required as change, or relaxation, by engaging in some lighter study: when the muscles, or both brain and muscles, are weary with a monotonous occupation we seek recreation, that is, some pursuit that shall restore the vigour of both body and mind, something that shall be literally re-creative.

What is play? We see many persons exert themselves in play with as much or more energy than they apply to work. Many sports and pastimes would be considered very hard work were we forced to engage in them, and they are tolerated only because they are not called work.

Considering how very precious the moments of youth are, we become utilitarians, and are prompted to urge that even the occupations of leisure hours shall be not wholly unprofitable. With most persons of sound mind and good habits, "Change of work is as good as play." In fact, too close and too long application to any study is not so profitable as the time expended would lead us to expect. A man may devote himself six or eight hours daily to the study of chemistry, with a view of making great strides, but his progress would doubtless be quite as rapid if he devoted four hours only to chemistry, and two or four to botany or zoology. We think that two hours' close application to one subject at a sitting as much as can be profitably undertaken.

We have often asked ourselves whether charades, riddles, conundrums, enigmas, are worth the trouble bestowed upon them. Might not the time given to them be as agreeably spent, and yet more profitably? It appears to us that they belong to the things of the past, and are not in consonance with the active, intellectual spirit of the present day. Most boys who have any desire to put themselves in the foremost ranks in the battle of life look forward to submit themselves to the test of a Public Examination. Of what avail at such a time would be the most elaborate enigma,

perplexing riddle, wily conundrum, or elegant charade? It cannot be denied that these puerilities consume a vast deal of precious time unprofitably, and with this conviction impressed upon us, we urge upon our young readers to devote a portion of their indoor-leisure to the study of the Examination Papers prepared as tests of qualification in candidates for the various branches of the Civil Service.

In this pursuit they will acquire real knowledge, such as will prove useful to them all their lives, and if they set about the acquisition in the same spirit as they now attack the mysteries of enigmas, &c., they will derive just as much amusement, and the pursuit will be a recreation rather than a task.

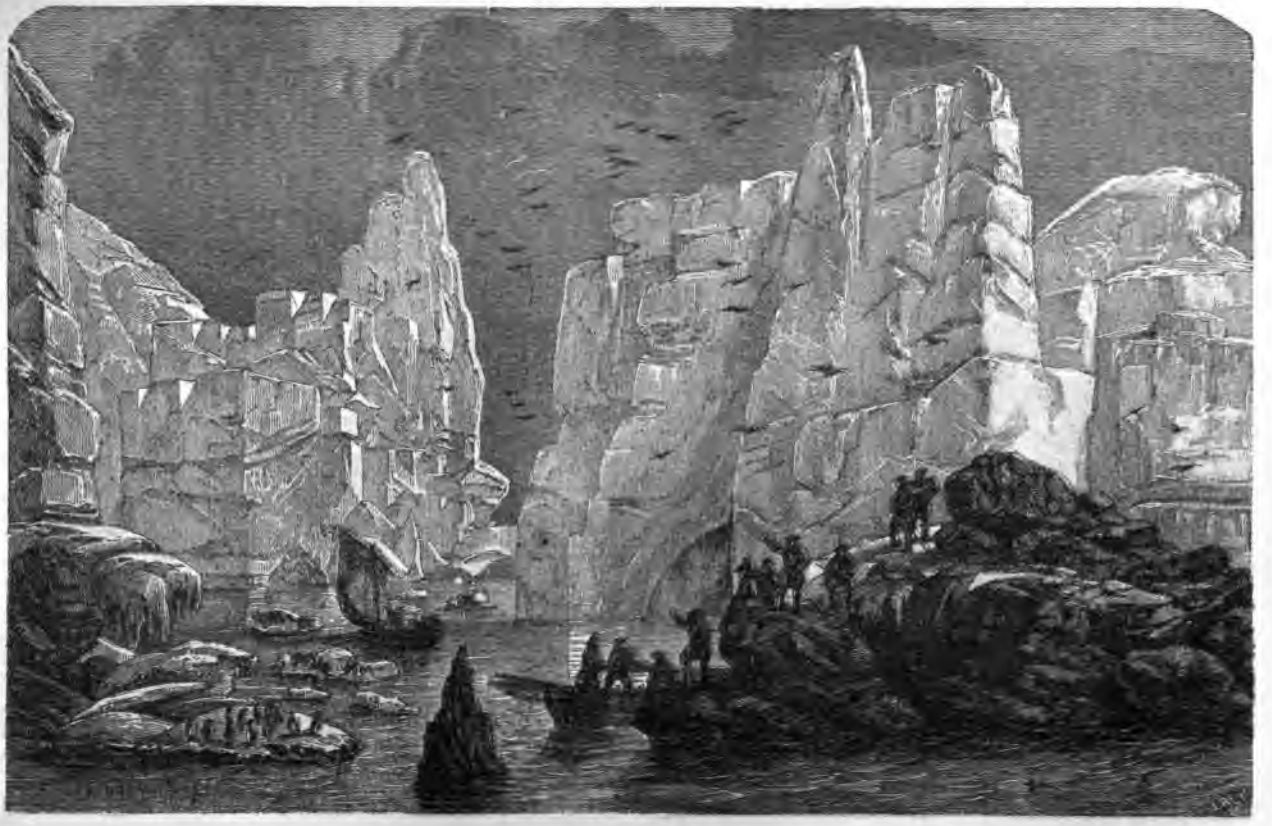
In a competitive examination a boy finds out what he really knows, and with this test constantly before him in his daily studies his faculties become keener, he grapples and holds fast every scrap of knowledge that comes within his ken.

In the "Boy's Wonder Book" we shall present from month to month the various series of questions contained in the Examination Papers submitted to candidates for appointments in the various departments of the Civil Service. Such of our readers as think fit to submit answers to our consideration will be replied to in our Correspondence, in which advice or criticism will be duly meted out as required.

EXAMINATION PAPERS.

NATURAL SCIENCE.

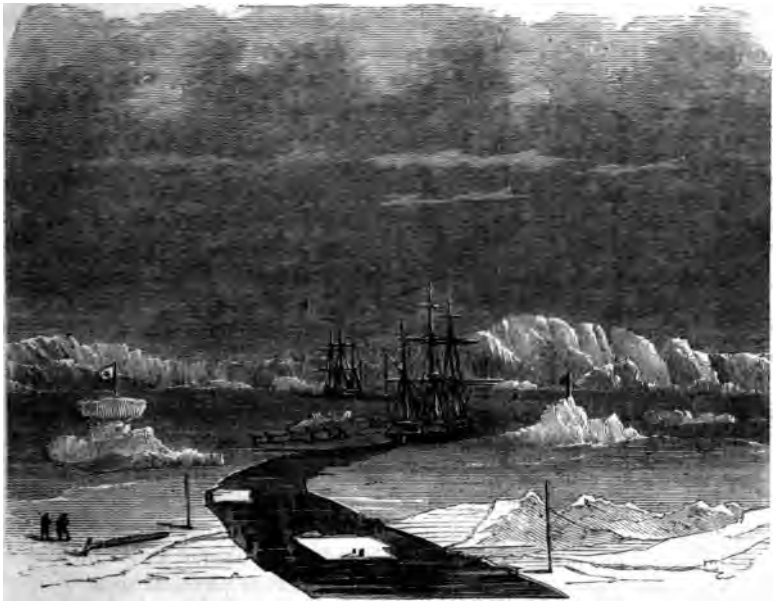
1. Enumerate the various kinds of levers, and state the general relation between the power and weight, when balanced on a lever.
2. Explain fully the principle of the graduation in the common and in the Danish steelyard.
3. What are the three laws of motion in dynamics, and how is their truth established?
4. Explain the construction and use of a common barometer and its vernier. Show also how a self-registering thermometer may be constructed.
5. Define specific gravity, and give a method by which the specific gravity of a body lighter than the fluid in which it is weighed may be found.
 A piece of metal whose weight in water is 12 ounces is attached to a piece of wood which weighs 16 ounces in vacuo, and the weight of the two in water is 8 ounces; find the specific gravity of the wood.
6. Explain the following terms: equator, ecliptic, zenith, solstice, meridian, meridian line, nadir, horizon, perihelion, solstitial colure, magnetic variation, compression of the earth.
7. Explain how it is that in sailing round the world a day is either lost or gained.
8. Explain the following phenomena:—
 (1) The changes of the seasons.
 (2) The different lengths of day and night.
 (3) The comparative absence of twilight in the tropics.
 (4) The trade winds.
 (5) The harvest moon.
 (6) The phases of the moon.
9. State concisely the principal arguments by which it may be proved (1) that the earth moves round its own axis; (2) that it moves round the sun.
10. Explain fully why the clock is sometimes before and sometimes behind the sun. How often are they together? What is this phenomenon called?
11. On the 31st January,—when it is 3·15 P.M. at Dublin, Lat. 53·20, Long. 6·15,—what is the hour and season at Rio Janeiro, S. Lat. 23°, W. Long, 43°?
12. Describe the common astronomical telescope, and show how its magnifying power may be measured.
13. How is a telescope made achromatic?
14. What are the various effects produced on bodies by heat? What exception is there to the law that the bulk of bodies increases with their temperature? What result would follow if this exception did not exist?
15. What hypotheses have been framed as to the formation of coal? Which do you prefer? Give your reasons.



ICE AND ICEBERGS.

THE sad fate of Sir John Franklin and his companions will ever invest the Polar Regions with a melancholy interest. For many years the search for the intrepid navigator was kept up with most persevering assiduity, and was at length rewarded with conclusive evidence of his death, together with a portion of his crew. But of another portion which, although then living, no tidings were ever heard, leaves the problem of their fate still unsolved.

Upwards of a hundred and thirty expeditions to the Polar Regions have been undertaken at various periods, most of which have departed from England. No less than twenty of these expeditions were undertaken in



CUTTING A PASSAGE IN THE ICE FOR THE SHIPS.

the search for Sir John Franklin. The earliest explorer of whom we have any account is Sebastian Cabot, who in 1498 sought for a north-west passage from Europe to China and the East Indies. Considering the date, and the means at the disposal of navigators at that time, his was a very bold effort. He reached Hudson's Bay, where his crew mutinied, and he was forced to return to Europe, and leave his cherished project unaccomplished. Labrador was discovered by Gaspard de Cortereal, in the year 1500, and Nova Zembla by Sir Hugh Willoughby in 1553, and the White Sea by Chancellor. In 1585 Davis visited the eastern coast of Greenland, and two

years later discovered the strait that bears his name. Barentz in 1596 discovered Spitzberg, which Hudson recognised in 1607, beyond the 82nd parallel of latitude. Three years subsequently, Hudson attached his name to the great bay of Labrador, but he proceeded no farther. His crew mutinied, and set him adrift in a boat, with his son, seven sailors, and a carpenter, who remained faithful to him, who all perished.

The Polar Sea was discovered in 1771 by a fur dealer, and a long time afterwards explored by Mackenzie.

Since the year 1818, when Ross, Franklin, and Parry took their way to the Arctic Seas, expeditions to the Polar Regions have rapidly succeeded each other. In 1827 Parry penetrated to the 82° of latitude. Sir John Franklin set out in 1845, with the ships "Erebus" and "Terror," discovered the long-sought northwest passage, but perished in the attempt. Captain MacClure also found it in 1850, in coming from the opposite coast; and in 1855 Dr. Kane's expedition found the open sea of the Arctic pole.

In the polar regions the surface of the water during the greater portion of the year is at a very low temperature: snow falling upon it does not melt, and the sea becomes covered with a continuous coating of ice, or with enormous floating icebergs, carried along by currents. When these great masses of floating ice encounter each other, they render the navigation of the polar sea extremely dangerous.

The water arising from melted ice is sweet and fresh, not salt, as might be supposed. This is the result of a well-known physical phenomenon. When a saline solution, such as sea-water, is frozen, the pure water only becomes solid ice; the saline solution, more concentrated, remains liquid. It is, therefore, only necessary to melt the ice of the polar seas, well washed in fresh water, in order to procure water fit for drinking and all domestic purposes.

There are, however, salt icebergs, which may be distinguished from fresh-water ice by their dazzling whiteness and opacity. Fresh-water ice is transparent, and more dense than salt ice: this latter owes its saltness to the sea-water retained within its interstices. Fresh-water ice is easily recognized by its limpidity, and beautiful emerald green hue. Captain Davis sometimes amused himself by making magnifying lenses of ice, with which he set fire to ice as with a burning glass, or lighted a pipe of tobacco, to the great astonishment of his crew, ignorant of physical laws.

The icebergs formed under the highest latitudes are carried southward by the winds and currents of the ocean; but sooner or later they are broken up by the action of the waves. The edges of the broken blocks of ice often unite together again, from whence results that assemblage of asperities or protuberances which sailors call "hummocks," and which give to the polar ice-fields an irregular and singular aspect.

When the ice-fields have an open space between one another through which a ship can pass, it is said that *the ice is open*. But in sailing through these openings, mountains of ice, partly or wholly submerged, are frequently encountered. The sailors give the name of *calf* to these masses

of ice. Captain Scoresby once sailed over a calf, but he trembled to think that his ship might have been lifted bodily into the air by it.

The aspect of the ice-fields varies in a thousand different ways. In one place it is a incoherent chaos, similar to a volcanic region, torn by fissures in every direction, and bristling with shapeless blocks of ice, heaped up haphazard. In another place it is a plain, an immense mosaic, composed of slabs of ice of every age and degree of thickness, the divisions in which are marked by long crests, of the most irregular forms, at one time resembling walls of rectangular blocks piled in tiers; at others, chains of rounded hills.

When a ship becomes imprisoned amid a field of floating ice, most inexplicable changes in these vast incoherent aggregations are sometimes observed. Vessels, supposed to be motionless, are found to have turned completely round in the course of a few hours. Two ships, imprisoned within a short distance of each other, became separated several leagues apart, without the slightest change in the surrounding ice being perceptible. At other times ships have been carried away by the floating ice just as the white bears are, which frequently have made long sea-voyages upon these monstrous vehicle. In 1777, the Dutch vessel "Wilhelmina," together with nine other whaling ships, was carried in the ice from the 80th to the 62nd degree in sight of the coast of Iceland. During this terrible voyage the vessels were crushed to pieces, one after another, and more than two hundred persons perished, the rest gained *terra firma*.

Lieutenant Hauen, during his search for Sir John Franklin, while in Wellington Strait, was taken by the ice, and remained captive nine months, during which he was carried 2,000 miles southward. The ship "Resolute," which Captain Kellet was compelled to abandon in an immense iceberg, was carried south by it as far as Hafn.

Icebergs and floating fields of ice are not exclusively due to the congelation of sea-water: a portion descends from the glaciers, which line the shore. On the borders of the circumpolar seas masses of ice rise up, which cover the coast in great measure. When the ground, otherwise very low, rises to a certain height, it constitutes *glaciers*, which, from their mode of formation, are analogous to the glaciers of temperate climes.

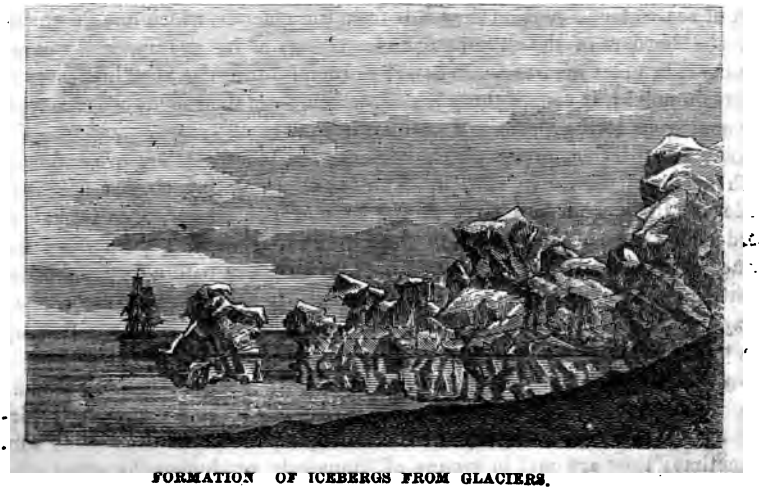
Like the glaciers of temperate regions, the polar glaciers are endowed with a slow, progressive motion. The ice of which they consist descends little by little, and so arrives at the foot of the glacier, that is, at the border of the sea. The action of the waves soon detaches them from the principal mass, and they fall into the sea, sometimes with a formidable detonation. These columns of ice either block up the shores, or are carried away by currents of the sea, and in this latter case constitute floating ice, or icebergs.

In the course of their voyage, these icebergs by partially melting assume the most singular and beautiful forms, which become exceedingly picturesque when lighted up by the red and purple rays of the setting sun. Sometimes they are met in groups of thousands, producing the effect of a

city of giants, carried away by some geological catastrophe, at the caprice of the unruly elements. A thousand hues of light play about these silver and crystal palaces. If a man shouts amid this gloomy solitude, his voice is echoed a thousand times from every quarter, till fancy attributes the sounds to the voices of invisible spirits responding to him who has dared to disturb their silence.

When the *ice master* perceives an iceberg approaching from the north, he sets every sail to hasten away from certain destruction. The rapidity of motion of these colossal masses is really prodigious. They are sometimes known to revolve with a velocity of several miles an hour.

The shock of two fields of ice dashing against each other surpasses everything the imagination can conceive. Who can describe the effect of a mass of many millions of tons suddenly arrested in its course? If two such masses encounter each other at equal velocities, and coming in opposite directions, what would be the fate of a frail ship caught in such a trap? In terrible Melville's Bay more than two hundred vessels have perished in this manner. "He must," says Malte-Brun, "have a heart of steel, to dare to bury himself in these inhospitable seas; for if the navigator has nothing to fear from tempests, he incurs other dangers much more capable of dismaying the boldest spirits. At one time, enormous iceblocks, agitated by the winds and the sea-currents, dash themselves against his frail bark: no rock or shoal is so dangerous or difficult to avoid. At others, these floating mountains perfidiously surround the navigator, closing every outlet against him: his vessel is stopped, and becomes fixed; in vain the powerless axe is tried to break these enormous masses; in vain the sails are spread to the winds: the vessel is soldered to the ice, as it were, and the navigator, separated from the world of the living, remains alone with annihilation."



FORMATION OF ICEBERGS FROM GLACIERS.

A FIRE-BALLOON VOYAGE IN 1784.

[We have received from one of our readers the following curious and interesting letter from M. l'Abbé Carnus, Professor of Philosophy at Rodez, to a friend, describing an aerial voyage made on the 6th of August, 1784.]

YOU have expressed a wish that I should send you a detailed account of my aerostatic experiment of Wednesday last, which important business engagements prevented you from taking part in. It is a pleasant duty to respond to your wish, and I proceed to describe what occurred with as much accuracy as possible.

At eighteen minutes past eight in the morning, every preparation being made, the firing of a gun announced that the fire was lighted. Soon afterwards we saw the collapsed Montgolfière (balloon) swell up and disembarrass itself with the greatest facility from the gallows on which it hung suspended. Its development was so rapid that you would have thought that it had risen inflated from out of a large subterranean aperture.

The atmosphere was calm, the sky free from clouds, the sun very hot. Our combustibles and instruments being placed in a car, my travelling companion (M. Louchet) took his seat and I took mine. At twenty-eight minutes past eight I cut the rope that bound us to the earth, and bowed to the spectators, while two cannon shots announced that our upward flight had commenced, and we were soon floating above even the highest buildings of the town.

The acclamations that accompanied our departure were succeeded by a general silence. The spectators wavered between admiration and fear and stood motionless, with fixed eyes, eagerly watching the magnificent balloon that rose almost vertically, with great rapidity, in most majestic style. Women, and men too, fainted from over excitement; others raised their hands towards the heavens and melted into tears, and turned pale at the sight of our brilliant fire.

"We have quitted the earth," I said to my companion. "I wish you joy," he replied; "put on more fuel."

A truss of straw, sprinkled with spirits of wine, put into the furnace greatly accelerated the velocity of our ascent. I looked down upon the town, which seemed to be running away from us. Terrestrial objects lost their form and bulk. The scorching heat that I had suffered at my post before cutting the ropes had now given place to a mild temperature, more congenial to the human frame. The air we now respired appeared to possess salubrious properties to which I had hitherto been a stranger.

"I feel very comfortable," I said to my fellow voyager; "how do yo feel?" "Never better," he replied; "cannot we send down a message?"

I immediately threw down a large sheet of paper, upon which I had written:—

"On board The Ville de Rodez. All is well."

This laconic message was received with the greatest delight.

At thirty-two minutes past eight our elevation was at least 1,000 toises (2,000 feet) above the level of the sea. A very clear bright fire of eighteen or twenty feet in height caused us to ascend four hundred voises higher. It was then in a circumference of more than three leagues in diameter; the balloon appeared to advance towards every part of the horizon, sailing majestically over the heads of the spectators, and appearing as if it would descend at their feet.

"Make our balloon invisible," said my intrepid companion at this moment. I felt it to be my duty to check his ardour, for too large a fire would have caused the balloon to burst.

From the moving theatre that carried us along I had watched a most imposing scene, which rapidly increased in magnitude, the boundaries of the horizon having receded prodigiously. The capital of Rouergue appeared to us merely a group of stones, from amid which one rose out some two or three feet high. This stone was the splendid clocktower of the cathedral, a masterpiece of Gothic architecture, as remarkable for its beauty as its height. Fertile valleys, wooded hills, high mountains (from whence flowed innumerable springs), frightful precipices, arid deserts, ancient castles perched upon precipitous rocks, formed the infinitely varied spectacle presented by Rouergue and the surrounding provinces to the traveller on the surface of the earth. But how different the scene to the aerial voyager! Our eyes perceived only a vast, immense country, perfectly round, a little depressed in its centre, shining in the purest light, irregularly strewn with verdure, but without inhabitants, towns, rivers, valleys, or mountains. Animated beings no longer existed for us; forests appeared changed into meadows. Cantal and the Cevennes had disappeared; the Alps were enveloped in fog; we looked in vain for the Mediterranean; the Pyrenees appeared to us like elongated heaps of snow, united at their bases. Our balloon, which, viewed from Rodez, now appeared no bigger than an orange, was the only thing that retained its original size in our eyes. What inappreciable sensations now arose in my heart. I had often reflected upon the works of nature; their magnificence had always filled my mind with admiration. How grand and beautiful nature now appeared in my eyes! Her dazzling magnificence and majesty astonished my imagination. Never before had man appeared to me so important a being. This, his last triumph over the elements, reminded me of many others. My companion was animated by the same feelings. Our gratitude equalled our delight. We made the empyrean vault echo with the names of these ever-renowned mortals who opened the way to their fellows. We shouted many times, "Montgolfier for ever! Pilatre for ever! Long live those who show courage and endurance!"

Meanwhile our fuel rapidly diminished, while the calmness of the air continued nearly the same as at first. Within scarcely eighteen minutes we had traversed a horizontal distance of 2000 toises.

"Take your observations; I'll feed the fire," said my companion at this moment.

I observed the barometer, the thermometer, and the magnetic needle; and having filled a flask with the air we were respiring at this elevation, I begged M. Louchet to reduce the fire. We descended nearly 300 toises, and then I filled another flask. A perfect harmony prevailed over all our manœuvres. Placed at a distance of 15 feet from each other, we saw and heard all that passed without difficulty—we kept up a continual conversation. My companion's ardour stimulated mine. I was enchanted with his *sang-froid*, his mirth, his address, his agility, and his way of preparing the fuel, and putting it into the furnace. I often congratulated myself with having found such a co-operator, who, after sharing all my cares and fatigues, and even my expenses, secured with so much activity and intelligence the success of my experiment.

At length we felt the refreshing breath of a light zephyr, which carried us gently towards the south-west. "Eolus has heard our prayers," said M. Louchet. "Yes," I replied, "but a little tardily." In six minutes we traversed more than 3000 toises. Then, having no more fuel than was necessary to enable us to select the place of our descent, we deliberated whether we ought not to put a termination to our aerial navigation. We had neither forest nor water to fear. Assured also of avoiding the danger of fire, by detaching the furnace from the car when at some distance from the earth, we decided to go forward and descend haphazard, at fifty-eight minutes past eight, all our fuel being consumed, except a reserve of two bundles of straw, weighing four pounds each, intended to render our descent more gentle.

The balloon had evidently descended for several seconds; terrestial objects resumed their proper forms and dimensions. Animals fled at the sight of our huge globe, which seemed as if it would crush them in its fall. Horsemen were compelled to dismount and lead their steeds. Terrified by a phenomenon to which their eyes were unaccustomed, the country people hastily quitted their work. We were now only about 100 toises from the earth. Our two bundles of straw thrown into the furnace produced the result we expected, but in checking our descent we prolonged our voyage.

We soon encountered a wood, which it was impossible to avoid. At the moment when we detached the furnace, and the balloon was about to terminate its voyage happily, the wind, which gradually diminished in force, carried it gently to the top of a young isolated oak-tree. I descended with the greatest facility. M. Louchet could not accomplish his descent at the same time as I did, which was the cause of quite an unexpected event. Released from the weight of my body, the balloon disengaged itself, to the great surprise of all the town of Rodez, who, in seeing the furnace fall down, expected to see the balloon take fire. An eagle perched on a tree

rises less rapidly into the air than our balloon rose upwards from the oak-tree that had prevented it descending upon the meadow.

As soon as I had set foot on the ground I looked around for my companion, and was agreeably surprised to hear his voice over-head, saying, "It is all right; make yourself easy."

I called to mind the protestations he had made to me several times, that he would not quit the balloon until it could no longer support us, and it was not, I assure you, without a feeling of jealousy that I saw it reascend to a height of 1,400 or 1,500 feet.

The balloon, after travelling a distance of about 600 voises without experiencing any sensible inclination, descended slowly, at four minutes past nine, near the village of Inieres, in a beautiful meadow on the Calmels estate, which belongs to the Chartreuse of Rodez, at a distance of upwards of 7000 voises from the place whence we started.

When the balloon touched the earth it rebounded some two or three feet, but soon came down again. M. Louchet leaped out of the car, and, at the same moment seizing hold of one of the ropes, he with much difficulty managed to retain the balloon, which made fresh efforts to escape.

He found himself alone for a few minutes; at length several country people drew near, without daring to approach the monster. He called out to them in a jargon, which was neither French nor *patois*, to come to his assistance. But in their eyes he was a veritable magician, whom an enormous monster, docile and submissive, carried him through the air at the word of command. It was some time before he could persuade them to take hold of the ropes attached to the car; they seemed to fear that if they touched it the monster would devour them.

Eight or nine minutes after M. Louchet's descent I arrived, almost out of breath, and I smilingly congratulated him at having so well selected the place of descent. The balloon was in the same condition as before our voyage. At first we thought of leaving it to empty itself of the rarefied air; but as thirty-six minutes afterwards it was only one-third empty, and as moreover the wind blew it about, and we were also exposed to the rays of a burning sun, we compressed it by main force, and, after having folded it up, we put it into a short narrow cart, drawn by a couple of oxen: there are no other kind of carts in this part of the country.

M. de Bonald, the mayor of Rodez, was staying at his country-house at Vielvessac, and quickly hastened to the scene of our operations, and gave us a pressing invitation to dine with him. We repaired to his house, where we met several amateurs, who had taken the trouble to follow our balloon on horseback, and to whom we were infinitely obliged. While at M. de Bonald's a report was drawn up setting forth in the most authentic manner the success of the balloon *La Ville de Rodez*.

I shall not attempt to depict the vivid enthusiasm which this experiment excited among the inhabitants of the town, as well as among a crowd of strangers who came from all parts to enjoy the interesting sight. The task would be beyond my powers. But to give you some idea it is only neces-

sary to tell you that a cavalcade, as numerous as circumstances permitted, led by the officers of the municipal council, marched at some distance in front of us, carrying laurel boughs, and accompanied by a military band of music. The procession was headed by a detachment of the town-guard, carrying the city standard and other banners. People of every class crowded in from all sides to see us pass. We marched some distance between two files of spectators, the *élite* of the town of Rodez, who applauded us loudly as we passed along. In the evening there was a bonfire, fireworks, and discharges of musketry; after which we were treated to a serenade, in which the principal musicians of the town took part. On the next and several succeeding days the most eminent citizens deigned to call upon and congratulate us, as though we had gained some important victory, or had brought some affair of state to a happy conclusion.

Perhaps, sir, you will think, as I did, that this was carrying things a little too far, but enthusiasm is not calculating, and everybody was truly enthusiastic with the beauty of our experiment. The honours accorded to us are a proof the more incontestable from the very fact of their being excessive. We are assured, both by the details we have ourselves read in the public papers and by the testimony of many persons as distinguished for their intelligence as by their rank, who have witnessed most of the aerostatic experiments made at Paris and elsewhere, that they never saw a fire-balloon make a quieter or steadier voyage, or more agreeable and satisfactory to the spectators.

I remain, dear sir, your very humble and obedient servant,

CARNUS.

WONDERFUL CHARACTERS.

BENJAMIN BANNEKER, THE NEGRO ASTRONOMER.

BENJAMIN BANNEKER was born near the village of Ellicott's Mills, in Baltimore County, Maryland, in the year 1732. There was not a drop of the white man's blood in his veins. His father was born in Africa, and his mother's parents were both natives of Africa. What genius he had, then, must be credited to the negro race. Benjamin's mother was a remarkable woman, and of a remarkable family. Her name was Morton before marriage, and a nephew of hers, Greenbury Morton, was gifted with a lively and impetuous eloquence which made its mark in his neighbourhood. Of him it is related that he once came to a certain election-precinct in Baltimore county to deposit his vote; for, prior to the year 1809, negroes with certain property qualifications voted in Maryland. It was in this year, in which the law restricting the right of voting to free whites was passed, that

Morton, who had not heard of its passage, came to the polls. When his vote was refused, Morton, in a state of excitement, took his stand on a door-step, and was immediately surrounded by the crowd, whom he addressed in a strain of passionate and prophetic eloquence which bore all hearts and minds along with him. He warned them that the new law was a step backward from the standard which their fathers had raised in the Declaration of Independence, and which they had hoped would soon be realised in universal freedom; that that step, unless retraced, would end in bitter and remorseless revolutions. The crowd was held in breathless attention, and none were found to favour the new law.

This man, we have said, was the nephew of Benjamin's mother. She was a woman of remarkable energy, who even after she was seventy years of age was accustomed to run down the chickens she wished to catch. Her husband was a slave when she married him, but it was a very small part of her life's task to purchase his freedom. Together they soon bought a farm of one hundred acres, which we find conveyed by Richard Gist to Robert Bannaky (as the name was then spelt) and Benjamin Bannaky his son (then five years old) on the 10th of March, 1737, for the consideration of seven thousand pounds of tobacco. The region in which Benjamin was born was almost a wilderness, for in 1732 Elkridge Landing was of more importance than Baltimore, and even in 1754 this city consisted only of some twenty poor houses, straggling on the hills to the right of Jones's Falls. The residence of the Bannekers was distant from these some ten miles away into the wilderness.

It was under these unpromising circumstances that little Benjamin grew up, his destiny being apparently nothing more than to work on the little farm beside his poor and ignorant parents. When he was approaching manhood, he went, in the intervals of toil, to an obscure and remote country school; for, until the cotton-gin made negroes too valuable on the animal side for the human side to be allowed anything so perilous as education, there were to be found here and there in the South, fountains whereat even negroes might slake their thirst for learning. At this school Benjamin acquired a knowledge of reading and writing, and advanced in arithmetic as far as "double position." Beyond these rudiments he was entirely his own teacher.

After leaving school he had to labour constantly for his own support; but he lost nothing of what he had acquired. It is a frequent remark, that up to a certain point the negroes learn even more rapidly than white children under the same teaching, but that afterwards, in the higher branches, they are slow, and, some maintain, incapable. Young Banneker had no books at all; but in the midst of his labour he so improved upon and evolved what he had acquired in arithmetic, that his intelligence became a matter of general observation. He was such an acute observer of the natural world, and had so diligently watched the signs of the times in society, that it is very doubtful whether at forty years of age this African had his superior in Maryland.

Perhaps the first wonder amongst his comparatively illiterate neighbours was excited, when, about the thirtieth year of his age, Benjamin made a clock. It is probable that this was the first clock of which every portion was made in America; it is certain that it was as purely his own invention as if none had ever been made before. He had seen a watch, but never a clock, such an article not being within fifty miles of him. The watch was his model. He was a long time at work on the clock, his chief difficulty, as he used often to relate, being to make the hour, minute, and second hands correspond in their motion. But at last the work was completed, and raised the admiration for Banneker to quite a high pitch among his few neighbours.

The making of the clock proved to be of great importance in assisting the young man to fulfil his destiny. It attracted the attention of the Ellicott family, who had just begun a settlement at Ellicott's Mills. They were well-educated men, with much mechanical knowledge, and some of them Quakers. They sought out the ingenious negro; and he could not have fallen into better hands. It was in 1787 that Benjamin received from Mr. George Ellicott Mayer's "Tables," Ferguson's "Astronomy," and Leadbetter's "Lunar Tables." Along with these, some astronomical instruments also were given him. Mr. Ellicott, prevented from telling Benjamin anything concerning the use of the instruments for some time after they were given, went over to repair this omission one day, but found that the negro had discovered all about them, and was already quite independent of instruction.

From this time astronomy became the great object of Banneker's life, and in its study he almost disappeared from the sight of his neighbours. He was unmarried, and lived alone in the cabin and on the farm which he had inherited from his parents. He had still to labour for his living; but he so simplified his wants as to be enabled to devote the greater portion of his time to astronomical studies. He slept much during the day, that he might the more devotedly observe at night the heavenly bodies whose laws he was slowly but surely mastering.

And now he began to have a taste of that persecution to which every genius under similar circumstances is subject. He was no longer seen in the field, where formerly his diligence had gained him a reputation for industry, and some who called at his cabin during the day-time, found him asleep; so he began to be spoken of as a lazy fellow, who would come to no good, and whose age would disappoint the promise of his youth.

There was a time when this so excited his neighbours against him that he had serious fears of disturbance. A memorandum in his hand-writing, dated December 18, 1790, states:—

"———— informed me that ———— stole my horse and greatcoat, and that the said ———— intended to murder me when opportunity presented. ———— gave me a caution to let no one come into my house after dark."

The names were originally written in full; but they were afterwards carefully cancelled, as though Banneker had reflected that it was wrong

to leave on record an unauthenticated assertion against an individual, which, if untrue, might prejudice him by the mere fact that it had been made.

Very soon after his possession of the books already mentioned, Banneker determined to compile an almanac, that being the most familiar use that occurred to him of the information he had acquired. To make an almanac was a very different thing then from what it would be now, when there is an abundance of accurate tables and rules. Banneker had no aid whatever from men or tables; and Mr. George Ellicott, who procured some tables and took them to him, states that he had advanced far in the preparation of the logarithms necessary for his purpose.

A memorandum in his calculations at this time thus corrects an error in Ferguson's "Astronomy":—"It appears to me that the wisest men may at times be in error; for instance, Dr. Ferguson informs us that when the sun is within 12° of either node at the time of full, the moon will be eclipsed; but I find that, according to his method of projecting a lunar eclipse, there will be none by the above elements, and yet the sun is within 11° 46′ 11″ of the moon's ascending node. But the moon being in her apogee prevents the appearance of this eclipse."

Another memorandum makes the following corrections:—"Errors that ought to be corrected in my Astronomical Tables are these: 2nd Vol. Leadbetter, p. 204, when ☿ anomaly is 4ˢ 30°, the equation 3° 30′ 41″ ought to have been 3° 28′ 41″. In ♂ equation, p. 155, the logarithm of his distance from ☉ ought to have been 6 in the second place from the index instead of 7, that is, from the time that his anomaly is 3ˢ 24° until it is 4ˢ 0°."

Both Ferguson and Leadbetter would have been amazed had they been informed that their elaborate works had been reviewed and corrected by a negro in the then unheard-of valley of the Patapsco.

The first almanac prepared by Banneker for publication was for the year 1792. By this time his acquirements had become generally known, and amongst those who were attracted by them was James McHenry, Esq. Mr. McHenry wrote to Goddard and Angell, then the almanac publishers of Baltimore, and procured the publication of this work, which contained, from the pen of Mr. McHenry, a brief notice of Banneker.

In their editorial notice, Goddard and Angell say, "They feel gratified in the opportunity of presenting to the public through their press what must be considered as an extraordinary effort of genius—a complete and accurate Ephemeris for the year 1792, calculated by a sable son of Africa," etc. And they further say that "they flatter themselves that a philanthropic public, in this enlightened era, will be induced to give their patronage and support to this work, not only on account of its intrinsic merits (it having met the approbation of several of the most distinguished astronomers of America, particularly the celebrated Mr. Rittenhouse), but from similar motives to those which induced the editors to give this calculation the preference—the ardent desire of drawing modest merit from obscurity,

and controverting the long-established illiberal prejudice against the blacks."

Benneker was himself entirely conscious of the bearings of his case upon the position of his people; and, though remarkable for an habitual modesty, he solemnly claimed that his works had earned respect for the African race. In this spirit he wrote to Thomas Jefferson, then Secretary of State under Washington, transmitting a manuscript copy of his almanac. The letter is a fervent appeal for the down-trodden negro, and a protest against the injustice and inconsistency of the United States toward that colour. Mr. Jefferson's reply is as follows:—

"*Philadelphia, Pa.*, August 30, 1791.

"Sir,—I thank you sincerely for your letter of the 19th instant, and for the almanac it contained. Nobody wishes more than I do to see such proofs as you exhibit, that Nature has given to our black brethren talents equal to those of the other colours of men, and that the appearance of a want of them is owing only to the degraded condition of their existence, both in Africa and America. I can add with truth that no one wishes more ardently to see a good system commenced for raising the condition, both of their body and mind, to what it ought to be, as fast as the imbecility of their present existence, and other circumstances which cannot be neglected, will admit. I have taken the liberty of sending your almanac to Monsieur de Condorcet, Secretary of the Academy of Sciences at Paris and Member of the Philanthropic Society, because I considered it a document to which your whole colour had a right for their justification against the doubts which have been entertained of them.

"I am, with great esteem, sir, your most obedient servant,

"THO. JEFFERSON."

When his first almanack was published Banneker was fifty-nine years of age, and had received tokens of respect from all the scientific men of the country. The commissioners appointed after the adoption of the constitution in 1789 to run the lines of the district of Columbia, invited the presence and assistance of Banneker, and treated him as an equal. They invited him to take a seat at their table, but he declined, and requested a separate table.

Banneker continued to calculate and publish almanacks until the year 1802. Besides numerous valuable astronomical and mathematical notes found amongst his papers there are observations of passing events, showing that he had the mind of a philosopher; for instance:—

"*27th August*, 1797.—Standing at my door I heard the discharge of a gun, and in four or five seconds of time the small shot came rattling about me, one or two of which struck the house, which plainly demonstrated that the velocity of sound is greater than that of a cannon-bullet."

"*23rd December*, 1790.—About three o'clock A.M. I heard a sound and felt a shock like unto heavy thunder. I went out, but could not observe any cloud. I therefore concluded it must be a great earthquake in some part of the globe."

In April, 1800, he writes :—

"The first great locust year that I can remember was 1749. I was then about seventeen years of age, when thousands of them came creeping up the trees. I imagined they came to destroy the fruits of the earth, and would occasion a famine in the land. I therefore began to destroy them, but soon saw that my labour was in vain. Again, in the year 1766, seventeen years after their first appearance, they made a second visit. I then, being about thirty-four years of age, had more sense than to endeavour to destroy them, knowing they were not so pernicious to the fruit as I had imagined. Again, in the year 1783, which was seventeen years later, they made their third appearance to me; and they may be expected again in 1800. The female has a sting in her tail as sharp and hard as a thorn, with which she perforates the branches of trees, and in the holes lays eggs. The branch soon dies and falls. Then the egg, by some occult cause, immerges a great depth into the earth, and there continues for the space of seventeen years, as aforesaid."

The following is worthy of Pliny :—

"In the month of January, 1797, on a pleasant day for the season, I observed my honey-bees to be out of their hives, and they seemed to be very busy, excepting one hive. Upon examination I found all the bees had evacuated their hive, and left not a drop behind them. On the 9th of February ensuing I killed the neighbouring hives of bees, and found a great quantity of honey, considering the season, which I imagine the stronger had taken from the weaker, and the weaker had pursued them to their home, resolved to be benefited by their labour or die in the contest."

Mr. Benjamin H. Ellicott, who was a true friend of Banneker, and collected from various sources all the facts concerning him, wrote in a letter as follows :—

"During the whole of his long life he was respected and much esteemed by all who became acquainted with him, but more especially by those who could appreciate his genius and the extent of his acquirements. Although his mode of life was regular and extremely retired, living alone, having never married, cooking his own victuals and washing his own clothes, and scarcely ever being absent from home, yet there was nothing misanthropic in his character, for a gentleman who knew him thus speaks of him :—

"I recollect him well. He was a brave-looking, pleasant man, with something very noble in his appearance. His mind was evidently much engrossed in his calculations, but he was glad to receive the visits which we often paid him."

Another writes :—"When I was a boy I became very much interested in him, as his manners were those of a perfect gentleman—kind, generous hospitable, humane, dignified, and pleasing, abounding in information on all the various subjects and incidents of the day, very modest and unassuming, and delighting in society at his own house. I have seen him frequently. His head was covered with a thick suit of white hair, which gave him a very dignified and venerable appearance. His dress was uniformly of

superfine drab broadcloth, made in the old style of a plain coat, with straight collar and long waistcoat, and a broad-brimmed hat. His colour was not jet black, but decidedly negro. In size and personal appearance the statue of Franklin, at the library in Philadelphia, as seen from the street, is a perfect likeness of him. Go to his house when you would, either by day or night, there was constantly standing in the middle of the floor a large table covered with books and papers. As he was an eminent mathematician, he was constantly in correspondence with other mathematicians in this country, with whom there was an interchange of questions of difficult solution."

Banneker died in the year 1804, beloved and respected by all who knew him. Though no monument marks the spot where he was born, and lived a true and high life, and was buried, yet history must record that the most original scientific intellect which the Southern States of America have yet produced was that of the pure African, Benjamin Banneker.

THE THREE WISHES.

THERE was once a wise emperor who made a law, that, to every stranger who came to his court, a fried fish should be served. The servants were directed to take notice if, when the stranger had eaten the fish to the bone on one side, he turned it over and began on the other side. If he did, he was to be immediately seized, and on the third day thereafter, he was to be put to death. But, by a great stretch of imperial clemency, the culprit was permitted to utter one wish each day, which the emperor pledged himself to grant, provided it was not to spare his life. Many had already perished in consequence of this edict, when, one day, a count and his young son presented themselves at court. The fish was served as usual, and when the count had removed all the fish from one side he turned it over, and was about to commence on the other, when he was suddenly seized, and thrown into prison, and was told of his approaching doom. Sorrow-stricken, the count's young son besought the emperor to allow him to die in the room of his father; a favour which the monarch was pleased to accord him. The count was accordingly released from prison, and his son was thrown into his cell in his stead. As soon as this had been done, the young man said to his jailors:—"You know I have the right to make three demands before I die; go and tell the emperor to send me his daughter, and a priest to marry us." This first demand was not much to the emperor's taste; nevertheless, he felt bound to keep his word, and he therefore complied with the request, to which the princess had no kind of objection. This occurred in the times when kings kept their treasures in a cave, or in a tower set apart for the purpose, like the Emperor of Morocco in these days; and, on the second day of his imprisonment, the young man demanded the

king's treasures. If his first demand was a bold one, the second was not less so; still, an emperor's word is sacred, and, having made the promise, he was forced to keep it; and the treasures of gold and silver were placed at the prisoner's disposal. On getting possession of them, he distributed them profusely among the courtiers, and soon he had made a host of friends by his liberality.

The emperor began now to feel exceedingly uncomfortable. Unable to sleep, he rose early on the third morning, and went, with fear in his heart, to the prison to hear what the third wish was to be.

"Now," said he to his prisoner, "tell me what your third demand is, that it may be granted at once, and you may be hung out of hand, for I am tired of your demands."

"Sire," answered his prisoner, "I have but one more favour to request of your majesty, which, when you have granted, I shall die content. It is merely that you will cause the eyes of those who saw my father turn the fish over to be put out."

"Very good," replied the emperor, "your demand is but natural, and springs from a good heart. Let the chamberlain be seized," he continued, turning to his guards.

"I, sire!" cried the chamberlain; "I did not see anything—it was the steward."

"Let the steward be seized, then," said the king.

But the steward protested, with tears in his eyes, that he had not witnessed anything of what had been reported, and said it was the butler. The butler declared that he had seen nothing of the matter, and that it must have been one of the valets. But they protested that they were utterly ignorant of what had been charged against the count; in short, it turned out that nobody could be found who had seen the count commit the offence; upon which the princess said,—

"I appeal to you, my father, as to another Solomon. If nobody saw the offence committed, the count cannot be guilty, and my husband be innocent."

The emperor frowned; forthwith the courtiers began to murmur; then he smiled, and immediately their visages became radiant.

"Let it be so," said his Majesty; "let him live, though I have put many a man to death for a lighter offence than his. But if he is not hung, he is married. Justice has been done."

THE COTTON PLANT.

THE story of the cotton plant is as marvellous and interesting as any Oriental legend. Its marvels are those of skill and industry: the triumphs of genius over difficulties that seemed insurmountable: the magnitude of its productions baffles all calculation. Deprive society of cotton, and we deprive it of one of the happiest results of civilisation.

The importance of cotton was never truly appreciated until the civil war in America occurred. We had relied too exclusively upon that country for our supplies, and when they seemed likely to fail, we eagerly sought out other cotton-producing countries; and now we look to Asia, the Cape of Good Hope, to Senegal on the coast of Guinea, Abyssinia, on the banks of the Niger and the Gambia, in Sierra Leone and the Cape de Verd Islands, in Syria, Egypt and Greece, Southern Italy, Sicily, Spain, Brazil, Columbia, Guiana, the Antilles, in Georgia and South Carolina in the United Sates, in Australia, and in the isles of the Indian Ocean. This list shows that this plant, so valuable to human industry, adapts itself to a great variety of climate.

We give the name of cotton to a fine, silky, filamentous substance, which develops itself on the surface of the seeds of several species and innumerable varieties of the genus *gossypium* of the family Malvacea. All cotton plants, without regard to species and varieties, are divided by planters into three great groups, according to their difference in height: shrubs and trees.

The cotton tree is generally planted in rows, or in quincunxes. Seventy days elapse between the flowering of the plant and the maturity of the seeds. These seeds are black, and of about the size of a pepper-corn, have a spongy envelope all covered with long hairs; they are contained in a dried fruit, which opens in three or five parvels. When the capsule is open, the seeds buried in the precious down escape from it, and care must then be taken that it is not soiled or damaged by wind or rain. The collection o the flocks of this down is performed by pulling it with the fingers in dry weather. To separate the seed from its silky envelope, a machine called the *cotton-gin* is employed, which performs the task quickly and effectually. The cotton is then beaten with rods, and afterwards packed in bales, and reduced to the smallest possible compass by hydraulic pressure. Cotton is valued in proportion to the length of its fibre or *staple*. Long staple cottons are employed for making thread and the finest fabrics; short staple cottons serve for coarser products. The finest qualities come from Brazil and the United States of America.

In India the cotton plant lives four or five years; in America, it is an annual plant. The *picking* season lasts from about the 1st of September to the end of the year, about which time frost sets in, and kills all the plants.

The plant continues to grow until the frost comes, so that the later and shorter the winter in the South the more abundant the crop.

The negroes who gather the cotton suspend work at midday to take their repast. This is usually taken in the field itself, unless the weather is too warm; then they are allowed an hour to go home to their cabins to dinner. Their food is quite as wholesome and nutritious as that of European workmen. Every man receives his portion of maize or rice, a plentiful supply of molasses (of which they are very fond), some fresh vegetables, with a piece of salt pork, or salt fish, &c. For dessert they are allowed to help themselves to as much fruit as they choose to eat, and to drink any quantity of coffee.

The negro works from sunrise to sunset. The sowing time is from the 1st to the 15th of May. After sowing comes weeding. They generally work by the piece, which allows active hands, if they have concluded their task before sunset, to go and work elsewhere for their own benefit.

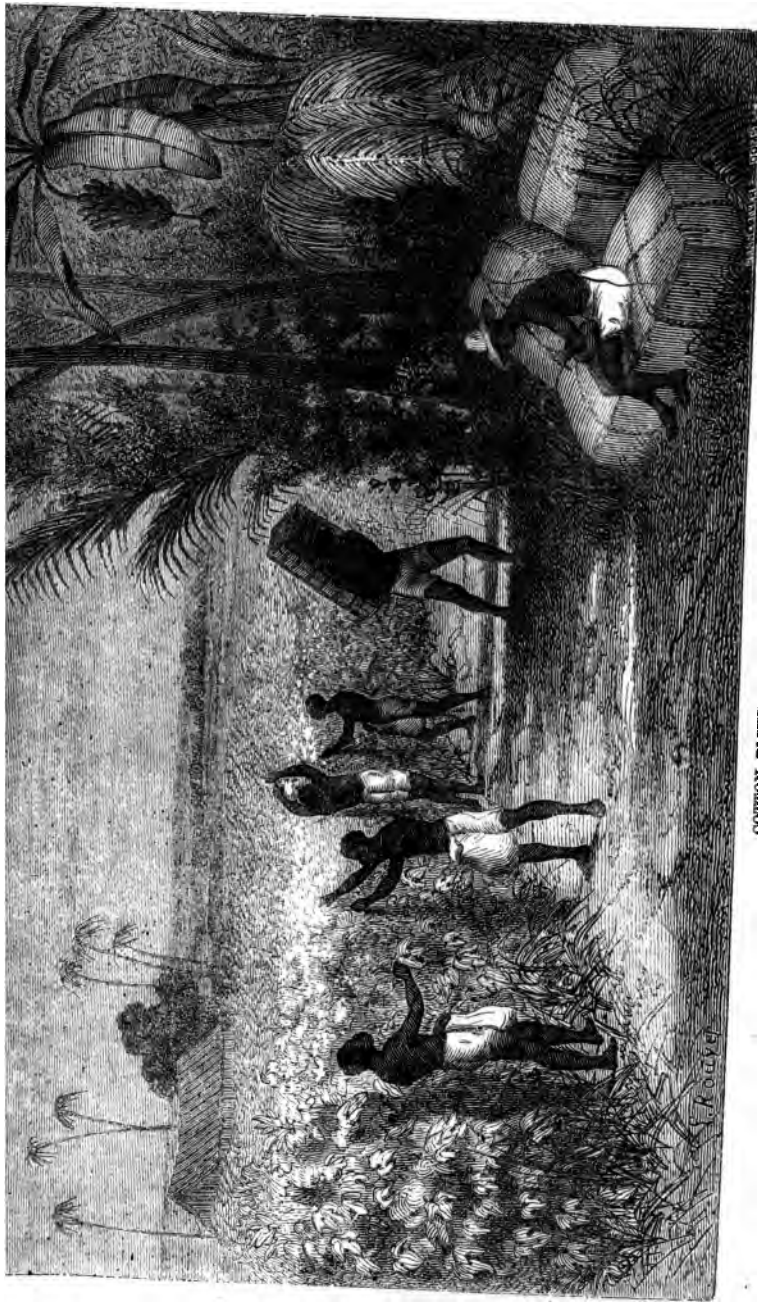
The picking of the cotton presents a very animated scene. The negroes proceed to the fields with large baskets, into which they put the seed and the down or *wool*. Each worker gathers from 200 to 300 pounds of cotton per day. Children of ten years from 30 to 40 pounds. At sunset the baskets are all carried to the house and weighed.

In separating the seed from the wool by hand labour, the result is about 65 pounds a day; but with the cotton gin as much as 1,000 pounds a day can be cleaned.

When the cotton is separated from the seed, it is dressed in light drums made to revolve rapidly, while a current of air is made to pass through them, which cleans the cotton. After the dressing the cotton is ranked according to quality, and packed in bales, which are shipped to the markets of Europe. In 1859 the production of cotton in the United States was between four and five millions of bales.

VALUABLE PREY.

A PEASANT in the environs of Kœnigsral (Bohemia) some time since found a hare, which had been caught in a snare, and carried it home, where it soon recovered from its partial strangulation and became the pet of his children. It was extremely tame, and allowed the young folks to handle it as they pleased. One day the children, in their play, put round its neck a necklace of gold ducats belonging to their mother, and were highly amused at seeing their favourite thus decorated. Unfortunately, at this moment the outer door was opened by a person entering, and the hare scampered off into the fields with the necklace, and has not since been seen.



COTTON PICKING IN SOUTH CAROLINA.

SHIPWRECK AND CAPTIVITY OF CAPTAIN JOHN RILEY.

CHAPTER IV.

DESCRIPTION OF THE NATIVES.—THEY MAKE WAR UPON THE CREW, AND DRIVE THEM OFF TO THE WRECK.

ALL hands being now landed, our first care was to secure the provisions and water which we had thus far saved, perceiving that it was a barren thirsty soil on which we had landed; and we carried the provisions up fifty yards from the water's edge, where we placed them, and then formed a kind of tent by means of our oars and two steering sails. I had indulged the hope that we should not be discovered by any human beings on this inhospitable shore, but that we should be able to repair our boats with the materials we might



get from the wreck, and by taking advantage of a smooth time (if we should be favoured with one) put to sea, where by the help of a compass and other instruments which we had saved, we might possibly find some friendly vessel to rescue us, or reach some of the European settlements down the coast, or the Cape de Verd Islands.

While thus employed we saw a human figure approach our stuff, such as

clothing, which lay scattered along the beach for a mile westward of us. It was a man! He began plundering our clothing. I went towards him with all the signs of peace and friendship I could make, but he was extremely shy, and made signs to me to keep my distance, while he all the while seemed intent on plunder. He was unarmed, and I continued to approach him until within ten yards.

He appeared to be about five feet seven or eight inches high, and of a complexion between that of an American Indian and a Negro. He had about him, to cover his nakedness, a piece of coarse woollen cloth, that reached from below his breast nearly to his knees: his hair was long and bushy, resembling a *pitch mop*, sticking out every way six or eight inches from his head; his face resembled that of an ourang-outang more than a human being; his eyes were red and fiery; his mouth, which stretched nearly from ear to ear, was well lined with sound teeth; and a long curling beard, which depended from his upper lip and chin down upon his breast, gave him altogether a most horrid appearance, and I could not but imagine that those well set teeth were sharpened for the purpose of devouring human flesh! particularly as I conceived I had before seen, in different parts of the world, the human face and form in its most hideous and terrific shape. He appeared to be very old, yet fierce and vigorous: he was soon joined by two old women of similar appearance, whom I took to be his wives. They looked a little less frightful, though their two eye-teeth stuck out like boar's tusks, and their tanned skins hung in loose plaits on their faces and breasts; but their hair was long and braided. A girl of about eighteen or twenty, who was not ugly, and five or six children, of different ages and sexes, were also in company, entirely naked.

They brought with them a good English hammer, with a rope-lanyard through a hole in its handle; it had no doubt belonged to some vessel wrecked on that coast. They had also a kind of axe with them, and some long knives slung on their right sides, in a sheath suspended from their necks. Feeling themselves strong in numbers, they commenced the work of plunder, and seized upon everything they wanted. They broke open trunks, chests, and boxes, and emptied them of their contents, carrying the clothing on their backs up to the sand-hills, where they spread them out to dry. They tore open the beds and emptied them of their contents, wanting only the ticking, and were much amused at seeing the feathers fly before the wind from my bed. It seemed as if they had never before seen such things.

I had speculated in some lace veils and silk handkerchiefs, the former of which the man, women and children tied round their heads in the form of turbans; the latter round their legs and arms, though only for a short time, when they took them off again, and stowed them away among the clothing on the sand-hills. They all seemed highly delighted with their good fortune, and even the old man's features began to relax a little, as he met with no resistance.

We had no fire or side-arms, but we could easily have driven these creatures off with handspikes, had I not considered that we had no possible

means of escaping either by land or water, and had no reason to doubt but that they would call others to their assistance, and in revenge destroy us.

I used all the arguments in my power to induce my crew to endeavour to conciliate the friendship of these natives; but it was with the greatest difficulty I could restrain some of them from rushing on the savages and putting them to death, if they could have come up with them; but I found they could run as swiftly as the wind, while we could with difficulty move in the deep sand. Such an act I conceived would cost us our lives as soon as we should be overpowered by numbers, and I therefore permitted them to take what pleased them best, without offering any resistance, except our bread and provisions, which, as we could not subsist without them, I was determined to defend to the last extremity.

Upon our first reaching the shore I allowed my mates and seamen to share among themselves one thousand Spanish dollars, for I had hauled my trunk with my money in it on shore by a rope; this I was induced to do in the hope of its being useful to them in procuring a release from the country in case we should be separated, and in aiding them to reach their homes. We had rolled up the casks of water and wine which had been throwu overboard and drifted ashore.

I now determined upon mending the long-boat, as soon and as well as possible, in order to have a retreat in my power (or at least the hope of one) in the case of the last extremity. The wind lulled a little in the afternoon at low water, when William Porter succeeded in reaching the wreck, and procured a few nails and a marline spike, with which he got safe back to the shore.

I found the timbers of the boat in so crazy a state, and the nails which held them together so corroded with rust, that she would not hold together, nor support her weight in turning her up in order to get at her bottom. I calked her timbers together, however, as well as I could, which was very imperfectly, as I had no tools to work with; and my crew, now unrestrained by my authority, having broached a cask of wine, and taken copious draughts of it, in order to drown their grief, were most of them in such a state that, instead of assisting me, they tended to increase my embarrassment.

At last, however, we got the boat turned up, and found that one whole plank was out on each side, and very much split. Assisted by Mr. Savage, Horace, and one or two others, we payed a little oakum into the seams and cracks with our knives, as well as we could, and worked upon her until it grew quite dark.

I had kept sentinels walking, armed with handspikes, to guard our tent and provisions during this time, but the Arabs had managed to rob us of one of our sails from the tent, and to carry it off; and not content with this, they tried to get the other in the same way. This I would not allow them to do. They then showed their hatchets and weapons, but finding it produced no effect upon us, they retired for the night, after giving us to understand that they would not molest us further till morning, when they

would bring camels down with them. We had previously seen a great many camel tracks in the sand, and I, of course, believed there were some near.

One of the children had supplied us with fire, which enabled us to roast a fowl that had been drowned and washed on shore from the wreck; on this and some salt pork, and a little biscuit, we made a hearty meal, little thinking that this was to be the last of our provisions we should be permitted to enjoy. Two men were set to watch, who were to walk guard at a distance from the tent, to give an alarm in case of the approach of the natives, and also to keep a good fire burning. This we were enabled to do by cutting up some spars we found on the beach, and which must have belonged to some vessel wrecked there before us.

Night had now spread her sable mantle over the face of Nature, the natives had retired, and all was still, except the restless and unwearied waves, which dashed against the deserted wreck, and tumbled among the broken rocks a little to the eastward of us, where the high, precipitous cliffs, jutting out into the sea, opposed a barrier to their violence, and threatened, at the same time, inevitable and certain destruction to every ill-fated vessel and crew that should, unfortunately, approach too near their immovable foundations; these we had escaped only by a few hundred yards.

From the time the vessel had struck until this moment, I had been so entirely engaged by the laborious exertions which our critical situation demanded, that I had no time for reflection; but now the full realisation of my peril rushed over my mind like a torrent, and banished from my eyes that sleep which my weary body so much required.

I reflected that I was on a barren and inhospitable coast; before me stretched a tempestuous ocean, whose bosom was continually tossed and agitated by wild and furious winds blowing directly on shore; no vessel or boat sufficient for our escape, for I considered it impossible for our shattered long-boat to live at sea, even if we should succeed in urging her through the tremendous surges that broke upon the shore with such violence as to make the whole coast tremble; behind us were savage beings bearing the human form indeed, but in its most terrific appearance, whose purpose I knew, from what had already happened, would be to rob us of our last resource—our provisions; and I did not doubt but they would be sufficiently strong in numbers in the morning, not only to accomplish what they intended, but to take our lives also, or to seize upon our persons and doom us to slavery, till death should free us from our miseries.

This was the first time I had suffered shipwreck. I had left a wife and five young children behind me at home, on whom I doated, and who depended on me entirely for their subsistence. My children would have no father's—perhaps no mother's—care to direct them in the paths of virtue, to instruct their ripening years, or to watch over them, and administer the balm of comfort in the time of sickness; no generous friend to relieve their distresses and save them from poverty, degradation, and ruin. These reflections harrowed up my soul, nor could I cease shuddering at the thought

of these possible evils, added to my actual ones, until I was forced mentally to exclaim—"Thy ways, great Father of the universe, are wise and just; and what am I, an atom of dust, that dares to murmur at thy dispensations?"

I next considered that eleven of my fellow-sufferers who had entrusted themselves to my care, were still alive and with me, and all but two of them (who were on the watch) lying on the ground, and wrapped in the most profound and apparently pleasing sleep; and as I surveyed them with tears of compassion, I felt it was a sacred duty, assigned me by Providence, to protect and preserve their lives to my very utmost. The night passed slowly and tediously away; when daylight at length began to dawn on the eastern horizon, and chased darkness before it, not to usher to our view the cheering prospect of approaching relief, but to unfold new scenes of suffering, wretchedness, and distress.

So soon as it was fairly light, the old man came down to the beach accompanied by his wives and two young men, members of his family. He was armed with an iron spear, having a handle made with two pieces of wood spliced together, and tied with cords; the handle was about twelve feet long. This he held balanced in his right hand, above his head, making motion, as if to throw it at us; he ordered us off to the wreck, pointing at the same time to a large drove of camels that was descending the heights to the eastward of us, his women running off at the same time, whooping and yelling horribly, throwing up sand into the air, and beckoning to those who had charge of the camels to approach.

I ran towards the beach and seized a small spar that lay there, to parry off the old man's lance, as a handspike was not long enough. He in the meantime rushed to the tent like a fury, where the people still were, and by slightly pricking one or two of them, and pointing at the same time towards the camels, he succeeded in frightening them, which was his object, as he did not wish to call help lest he should be compelled to share his plunder. The crew all made the best of their way to the small boat, while I parried off his spear with my spar, and kept him at a distance. He would doubtless have hurled it at me but for the fear of losing it.

The small boat was dragged to the water, alongside our hawser, but the men huddling into her confusedly she was filled by the first sea, and bilged. I now thought we had no resource except trying to get eastward or westward. Abandoning, therefore, our boats, provisions, &c., we tried to retreat eastward, but were opposed by this formidable spear, and could not make much progress, for the old man was very active; he would fly from us like the wind, and return with the same spear.

The camels were approaching very fast, and he made signs to inform us that the people who were with them had firearms, and would put us instantly to death. At the same time he opposed us in every way with his young men, with their weapons, insisting on our going towards the wreck, and refused to receive our submission, while the women and children still kept up their yelling. We then laid hold of the long-boat, turned her over, and

got her into the water; and as I would suffer only one at a time to get on board, and that too over her stern, we succeeded at length, and all got off safe alongside the wreck, which made a tolerable lee for the boat, though she was by this time half filled with water.

All hands, except myself and another, got on board the wreck; we kept baling the boat, and were able to keep her from entirely filling, having one bucket and a keg to work with. The moment we were out of the way all the family ran together to our tent, where they were joined by the camels and two young men whom we had not before seen; they were apparently about the ages of twenty and twenty-six. They were armed with scimitars, and came running in front from the eastward. The old man and women ran to meet them, shouting to us, brandishing their naked weapons, and bidding us defiance.

They loaded the barrels of biscuit on their camels, which kneeled down to receive them, then the beef and all the other provisions, with the sail the tent was made of, etc., and sent them off with the children, who drove them away. The old man next came down to the beach, and with his axe stove in the heads of all our water-casks and wine-kegs, emptying their contents on to the sand. Then gathering together all the trunks, chests, sea-instruments, books and charts, they formed a pile and set fire to them.

Our provisions and water being now gone, the only alternatives that presented themselves were to try to get to sea in our leaky boat, or to stay by the wreck and be washed off during the night, or stay and perish by the hands of these barbarians, who we expected would appear in great force, and bring firearms with them. Besides, they would soon be able to walk dry-footed to the wreck on a sandbar that was fast forming under the vessel. The tide seemed to ebb and flow about twelve feet.

We had now made all the preparations in our power for our departure, which amounted to nothing more than getting from the wreck a few bottles of wine and some pieces of salt pork. No water could be procured, and the biscuit was completely spoiled by being soaked in salt water. Our oars were all lost, except two that were on shore in the power of the natives. We had split a couple of planks for oars, and attempted to shove off, but a surf striking the boat, came over her bow, and nearly filling her with water, drifted her again alongside the wreck. We now made shift to get on board the wreck again, and bale out the boat, which when done two hands were able to keep her free, while two others held her steady by ropes, so as to prevent her from dashing to pieces against the wreck.

CHAPTER V.

THE NATIVES SEIZE THE AUTHOR BY PERFIDY, AND THEN GET POSSESSION OF THE MONEY.—THE AUTHOR'S CRITICAL SITUATION ON SHORE.—HE ESCAPES TO THE WRECK.—ANTONIO MICHEL IS MASSACRED.

The sight of our deplorable situation seemed to excite pity in the breasts of the savages who had driven us from the shore. They came down to the

water's edge, bowed themselves to the ground, beckoning to us, and particularly to myself, whom they knew to be the captain, to come on shore; making at the same time all the signs of peace and friendship they could. They carried all their weapons up over the sandhills, and returned without them.

Finding I would not come on shore, one of them ran and fetched a small goat or dog-skin, which by signs they made me understand was filled with water, and all retiring to a considerable distance from the beach except the old man who had it: he came into the water with it up to his armpits, beckoning me to come and fetch it and drink. He was nearly naked, and had no weapons about him.

Being very thirsty, and finding we could not get any water, and no hope remaining of our being able to get out through the surf to sea, I let myself down by the hawser, and went by means of it to the beach, where the old man met me and gave me the skin of water, which I carried off to the wreck, and the crew hauled it up on board. This done, he made me understand that he wished to go on board, and I to remain on the beach until his return.

Seeing no possible chance of escaping or of preserving our lives in any other way but by their assistance, and that that was only to be obtained by conciliating them—telling my crew my mind, I went again to the shore. The young men, women and children were now seated unarmed on the beach, near the water—the grown people nearly, and the children entirely naked. They made all the signs of peace they knew of, looking upwards, as if invoking heaven to witness their sincerity.

The old man advancing, took me by the hand, and looking up to heaven, exclaimed, "*Allah-k-Beer!*" I knew that *Allah* was the Arabic name for the Supreme Being, and supposed that *k-Beer* meant "our friend, or father." I let him pass to the wreck, and went and seated myself on the beach with the others, who seemed very friendly, interlacing their fingers with mine, putting my hat on their heads and returning it to me again, stroking down my trowsers, feeling my head and hands, examining my shoes, and feeling into my pockets, &c.

When the crew had hauled the old man on board, I endeavoured to make them understand that they must keep him as hostage until I was released, but they did not comprehend my meaning, owing to the noise of the surf; and after he had satisfied his curiosity by looking attentively at everything he could see, which was nothing more than the wreck of the contents of the hold floating in her, inquiring for baftas, firearms, and for money, as I afterwards learnt, and finding none he came on shore.

My mates and seamen then on the wreck had witnessed this scene, and had agreed, as they afterwards informed me, that if I was massacred, which they did not doubt from appearances would soon be the case, to rush on shore in the boat, armed in the best manner they were able, and revenge my death by selling their lives as dearly as possible.

When the old man had quitted his hold, and I had hailed my people, their

hopes began to revive, and one of them came on the hawser to know what they should do. I told him all the money which they had on board must instantly be brought on shore. He was in the water at some distance from me, and could not hear, on account of the noise occasioned by the surf, what I added, which was for them not to part with the money until I should be fairly released. He went on board, and all hands, hoping to procure my release, put their money, which they still had about them, to the amount of about one thousand dollars, into a bucket, and slinging it on a hawser, Porter shoved it along before him near to the beach, and was about to bring it up to the place where I was sitting. The old man had taken his seat alongside of me, and held his scimitar pointed at my breast.

The bucket of dollars was brought and poured into one end of the old man's blanket, when he bade me rise and go with them, he and the young men urging me along by both arms, with their daggers drawn, before, and the women and children behind with the spear, and their knives near my back. In this manner they made me go with them over the sand-drifts, to the distance of about three or four hundred yards, where they seated themselves and me on the ground.

The old man then proceeded to divide the money. He made three heaps of it, counting into each heap by ters, and so dividing it exactly, gave to the two young men one third or heap, to his two wives one third, and kept the other to himself. Each secured his and their own part by wrapping and tying it up in some of our clothing.

During these proceedings they had let go of my arms, though they were all around me. I thought my fate was now decided, if I could not by some means effect my escape. I knew they could outrun me if I should leap from them, and would undoubtedly plunge their weapons into my heart if I attempted, and failed in the attempt. However, I resolved to risk it, and made a slight movement with that view at a moment when I thought all eyes were turned from me; but one of the young men perceiving my manœuvre, made a lounge at me with his scimitar. I eluded the force of the blow by falling backwards on the ground: the weapon, however, pierced my waistcoat. He was about to repeat the blow, when the old man bade him desist.

The money being now distributed and tied up, they made me rise with them, and were all going together from the beach, holding me by the arms, with naked daggers all around me. There appeared now no possible means of escape, when the thought suddenly occurred to me to tempt their avarice.

By signs I made them understand that there was more money in the possession of the crew. This seemed to please them, and they instantly turned themselves and me about for the beach, sending the money off by one of the young men and a boy. When they approached to within one hundred yards of the beach they made me seat myself on the sand between two of them, who held me by the arms, bidding me order the money to be sent on shore.

I knew there was no money on board the wreck or in the boat, but I

imagined that if I could get Antonio Michel on shore I should be able to make my escape. I hailed accordingly, and made signs to my crew to have one of them come near the shore; but as they saw by every movement of the natives that my situation was fearfully critical, none of them were inclined to venture, and I waited more than hour, was often threatened with death, and made to halloo with all my might, until I became so hoarse as scarcely to make myself heard by those around me.

The pity of Mr. Savage at length overcame his fears. He ventured on the hawser, and reaching the beach in safety, was about to come up to me, where he would have been certainly seized upon as I had been, when I ventured to make him understand by signs, that he must stay in the water and keep clear of the natives if he valued his life; but he being unable to hear me, my guards, who supposed I was giving him orders to fetch the money, compelled me to get up and approach him a little, until I made him understand what I wanted; he then returned on board the wreck, and I was taken back to my former station.

Antonio came to the shore, as soon as he knew it was my wish, and came directly towards me. The natives expecting he would bring more money, flocked around him to receive it, but finding he had none they struck him with their fists and the hilts of their daggers, and stripped off all his clothing; the children at the same time pricking him with their sharp knives, and all of them seemed determined to torment him with a slow and cruel death.

He begged for his life upon his knees, but they paid no regard to his entreaties. In the hopes of saving him from the fury of these wretches, I told him to let them know, by signs, that there were dollars and other things buried in the sand, near where our tent had stood, and to endeavour to find them by digging. A new spyglass, a handsaw, and several other things had been buried there, and a bag containing about four hundred dollars at a short distance from them. He soon made them understand that something was buried, and they hurried him to the spot he had pointed out, and he began to dig. I had imagined that if this man would come on shore I should be enabled to make my escape; yet I knew not how, nor had I formed any plan for effecting it.

I was seated on the sand, facing the sea, between the old man on my left, with his spear uplifted in his left hand, pointing to my breast, and the stoutest young man on my right, with a naked scimitar in his right hand, pointing to my head—both weapons were within six inches of me, and my guards within a foot on each side.

I considered at this time that, so soon as anything should be found by those who were digging, they would naturally speak and inform those who guarded me of it, who had let go of my arm some time before; and as I was pretty certain that both of them would look round as soon as the discovery of any treasure should be announced, I carefully drew up my legs under me, but without exciting any suspicion, in order to be ready for a start. The place where they were digging was partly behind us on our right, and upon

their making a noise both my guards turned their heads and eyes from me towards them, when I instantly sprung out from beneath their weapons and flew to the beach.

I was running for my life, and soon reached the water's edge: knowing I was pursued, and nearly overtaken, I plunged into the sea with all my force, headforemost, and swam under water as long as I could hold my breath; then rising to the surface I looked round on my pursuers. The old man was within ten feet of me, up to his chin in water, and was in the act of darting his spear through my body, when a surf rolling over me saved my life, and dashed him and his comrades on to the beach.

I was at some distance westward of the wreck, but swimming as fast as possible towards her, whilst surf after surf broke in towering heights over me, until I was enabled by almost superhuman exertion to reach the lee of the wreck, when I was taken into the boat, over the stern, by the mates and seamen.

I was so much exhausted that I could not immediately witness what passed on shore, but was informed by those who did, that my pursuers stood motionless on the beach, at the edge of the water, until I was safe in the boat; that they then ran towards poor Antonio, and plunging a spear into his body, near his left breast, downwards, laid him dead at their feet. They then picked up what things remained, and made off altogether.

I saw them dragging Antonio's lifeless trunk across the sandhills, and felt an inexpressible pang, that bereft me for a moment of all sensation, occasioned by the reflection that to me alone his massacre was imputable. But upon my recovery, when I reflected there were no other means whereby my own life could have been preserved, and, under Providence, the lives of ten men, who had been committed to my charge, I concluded I had not done wrong; nor have I since had occasion to reproach myself for being the innocent cause of his destruction; nor did any of his surviving shipmates, though perfectly at liberty to do so, ever accuse me on this point; from which I think I have an undoubted right to infer, that their feelings perfectly coincided with mine on this melancholy occasion.

THE DRAUGHT HORSE.

"WHAT a shame!" said the great Draught-horse to his companion, standing with him in the shafts of a cart laden with stone.

"What's the matter?" asked the other.

"Why, our master is so unfair; here we are labouring along with this load, and just look at yon fellow with nothing but a bag of chaff on his back!" replied the first.

"Look at yon fellow, indeed!" cried the second; "yes, *do* look at him, with his broken knees, and his head hanging down and his bones sticking out; why, he hasn't a leg to stand on. Our master knows what he is about; a bag of chaff to *him* is worse than these stones are to us."

PEARLS AND THE PEARL FISHERY.

THE Phœnicians were the most ancient pearl merchants, who, by crossing the deserts of Arabia, found their way to Gherra, a place of commercial importance on the Persian Gulf. The Greeks probably received them even before the expedition of Alexander, with other Indian merchandise, by way of Bactria, the Oxus, Caspian Sea, and Phasis. Rome became acquainted with pearls during the Jugurthian war, first as the spoils of conquered nations, afterwards as articles of commerce, when Egypt had become a Roman province. In the days of Pliny they fished for pearls both in the Persian Gulf and in the island of Taprobane (Ceylon), from whence they arrived at Rome by way of Alexandria. But at that time very singular ideas of the nature of the pearl fishery were entertained. Pliny and Ælian thought that the shells swam in flocks in the sea, and that, like the bees, they had a king. When this king was caught, the whole flock entered the net in pursuit of him.

In Ceylon the pearl fishery appears to have never been interrupted. The celebrated Mohammedan traveller, Ibn Battuta, found it in active operation in 1324, but the commerce experienced many vicissitudes. After the downfall of the Western Empire, Constantinople became the great *entrepôt* of the productions of the East, and remained so until the end of the Crusades. Although from the beginning of the ninth century, some Italian merchants had opened relations with India by way of Syria and Egypt.

The Portuguese made their appearance at Ceylon in 1506. Under their management, the fishery season collected together some fifty or sixty thousand men,—divers, sailors, merchants, and traders of all kinds. The pearls belonged to the natives who fished them, but the Portuguese bought them at their own price, which was very low. Goa was then the principal market in the East for pearls: the products of Ceylon mingling with those of the Persian Gulf.

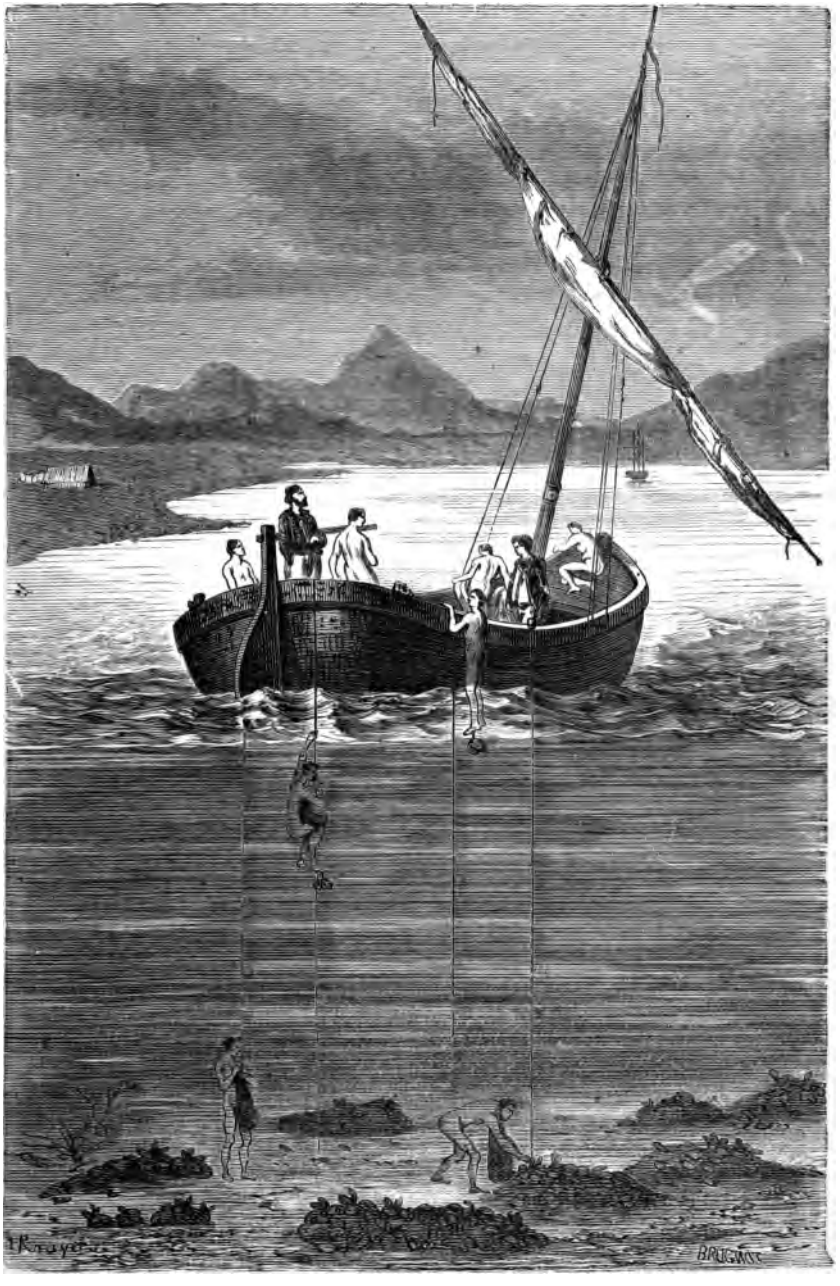
The rule of the Portuguese continued about a century: they were succeeded by the Dutch in 1612, who fished every three years: but the work was interrupted in 1768, in consequence of a misunderstanding with the Indian princes of Dekkan, so that when the English took possession of the island in 1796, they found the banks very rich, in consequence of this respite of eighteen years. Many of the fish were dead, for the pearl-oyster of Ceylon appears to live only six or seven years. The fisheries of 1796, 1797, and 1798 yielded many very large pearls, because an immense number of oysters had then attained their full development. The following years were also very good, and the fisheries gave such satisfactory results that the very wise rule was adopted of working a bank only once in seven years. The fisheries are much less productive now-a-days, because all the banks have been devastated by one of the recent governors.

The months of March and April are appropriated to the fishery, as in those months the sea is most tranquil. The Government marks out the

banks according to a survey made in the previous November. The fishery always attracts a large concourse of people from all parts of India. The shore, which during the rest of the year is scorched by the sun and deserted by every living creature, is in the twinkling of an eye covered with bamboo huts, roofed with palm-leaves, rice-straw, and sometimes with cotton stuffs. The majority of the assembled crowd consists of poor people; even in the shops of the merchants only coarse garments and earthen pots to boil rice in, are to be seen. Adventurers, jugglers, *bayaderes*, and even thieves, form part of the motley crowd. Some of the rich natives promenade in superb palanquins, with magnificent parasols, clothed in velvet garments embroidered with gold. In 1833, the last important fishing season, twelve hundred and fifty divers were occupied on a hundred and twenty-five fishing vessels. Eleven hundred of them came from the Indian coast, and only a hundred and fifty belonged to Ceylon.

The firing of a cannon at midnight gives the signal of preparation; the boats quit the shore, and go and range themselves near the Government cutter, which has taken up its position several days previously, and which is the head-quarters of the fishery. Between six and seven o'clock in the morning another signal is fired; the boats then repair to the places previously marked out for them; the divers' apparatus is made ready, and attached to the outside of each boat. From one side hang three, and from the other two stones, shaped like a sugar-loaf: they weigh from twenty to thirty pounds, according to the weight of the pearl-diver, and are employed to facilitate his descent into the water. The rope which sustains them passes over the pointed end, above which it forms a noose to receive the feet of the diver.

With the exception of a cotton cloth round his loins, the diver is entirely naked: sometimes a supplementary weight is put into this cloth. Putting his right foot into the noose, and holding the net in his left, the diver drops down. Arrived at the bottom, he releases himself from the stone, kneels down, and throws whatever comes within his reach into the net. When the net is full, he gives the rope a shake, as a signal that he is ready to be drawn up. Five divers go down in this manner at the same time, from the same boat, for there are two to each stone, one of whom rests while the other dives. The descent into the water is made with a loud noise, to drive away the sharks, so that accidents rarely occur. Nevertheless, the divers engage "shark conjurors," who stand on the shore praying, receiving payment for their services. The Catholic divers, the last remnant of the Portuguese occupation, take the precaution, before diving, to fasten maxims and sentences from the Bible to their arms. Generally, the diver remains from fifty-three to fifty-seven seconds under water; he can remain as long as ninety seconds, but if he does he comes up very much exhausted. Every diver descends from forty to fifty times a day, bringing up from one to four thousand shells. The average load of a boat at the end of the day varies between twenty and thirty thousand. Beside the divers, each boat carries ten assistants, a pilot, a cabin-boy, a guide, and, if the fishing is on



the Government account, a soldier also. The diver is remunerated either in money or by a share of the produce.

As soon as the boats return to the shore, the shares are distributed among the temples, the workers, and the shark conjurors. The rest is sold in the shell, which the buyers often open at once, to ascertain whether they have made a good or a bad bargain. Those who buy the shells in large quantities do not open them, but leave them in an enclosed place to rot, which requires two or three days; they then wash them in tubs with sea water until all the pearls are collected together at the bottom. They are afterwards assorted, according to size, into nine classes, by passing them through nine different sized sieves, and they often *bore* them before selling them. The natives are very skilful at this operation; they press the pearls into little holes in a block of wood, moisten them with water, and pierce them with a needle moved by a drill.

The Ceylon pearl-oyster forms an imperfect oval; it is thin and transparent, and its inner surface exhibits the iridescent colours peculiar to pearls. Its pearl seems, however, but little esteemed, for it is not met with in commerce. The shell is frequently found filled with parasites. When the young oysters quit the ovaries, they float in the water in compact masses, which might easily be mistaken for the *frai* of a fish. The sport of the winds and waves, they float along the coasts, until they encounter corals, rocks, or old shells, to which they attach themselves, and where they afterwards remain during the whole period of their growth.

The number of shells raised during a single fishery is very considerable, and cannot be estimated at less than sixty millions for a hundred and fifty boats fishing during twenty days; and when the banks are very well furnished, as many as three hundred boats will take part in the fishery.

The pearl fishery of the Persian Gulf takes place from the month of June to the middle of September, and attracts a population of about thirty thousand men. The fishery is open to all, the divers paying a small poll-tax. As disputes frequently occur among the tribes who assemble to the fishery, two English vessels of war cruise at the entrance, to keep order. The divers apply a pair of horn pincers to their nostrils, and plug their ears with tufts of oiled cotton; they fasten stones to their feet, as the Ceylon divers do, and bring up from a depth averaging forty-five feet eight to ten shells at a time. They do not usually remain under water longer than a minute, and they arm themselves with a long-bladed sharp knife, to defend themselves against sharks and saw fish, the latter attaining sometimes a length of seventeen feet in these waters. The proprietor of the boat pays the divers with fish, rice, dates, and a portion of the fishery, which he first buys of them at a very low price; so that here, as everywhere else, the divers remain poor, and with much difficulty keep themselves from starving.

The pearl shells of the Persian Gulf are double the size of those of Ceylon; they are also thinner, and smoother externally. The pearls are not so white as those of Ceylon, but possess a yellow tinge.

There are many places in the Red Sea where the pearl fishery is carried on, and all the shores and gulfs of the Indian Ocean abound in banks of pearl-oysters. The Pacific Ocean appears to be a vast sea of pearls; for upon most of its islands to the north and the south of the equator, from New Holland to the United States, navigators have found the islanders adorned with pearls, and their fishing tackle partly made of pearl. In 1825 Lieut. Hardy was charged by an English company to explore the Gulf of California. He found no banks of pearl oysters, but only single shells, attached to the rocks, and often inaccessible to a diver, even when furnished with a diving-bell. At the present time the fishery is more flourishing, but still fine pearls are rare. Some three or four hundred divers are employed in the Gulf of Panama.

Fresh water pearls are found from our latitude up to the borders of the Frozen Ocean. But the poverty of our northern streams can bear no comparison with the immense production of tropical seas. In Germany the most renowned pearl-river is the Elster. A fishery that once flourished in Danish Jutland is now wholly abandoned. English pearls were known in the time of Julius Cæsar. Pliny describes them exactly as they appear at the present day. There were specimens at the Great Exhibition of 1851. Scotch pearls were in great request during the middle ages. Some districts of Ireland also yield them; and in Wales small pearls have been found at the mouth of the River Conway; but they are small, and of little value.

Paris is the principal mart for pearls. During nineteen years, from 1837 to 1855, France imported 980,791 grammes, equal to 2,156 pounds weight of the value of 18,803,585 francs, or £752,143.

Pearls are generally sold, as diamonds are, by the *carat* weight; and the price is in proportion to the square of the weight.

HOW I GREW STRONG.

BY DR. WINSHIP.

IN the December of 1855 I was admitted to the arcana of the dissecting-room, and forthwith commenced some experiments with the view of testing the sustaining power of human bones. Some one had told me that, in lifting a heavy weight, there was danger of fracturing the neck of the thigh bone; but my experiments satisfied me that, if properly positioned, it would safely bear a strain of two or three thousand pounds. And so I concluded that I might securely continue my practice of lifting till I reached the last-named limit.

In order to get all possible hints from the inspiration and experience of the past I studied some of the ancient statues in the British Museum and the Crystal Palace, especially the Hercules and the Gladiator. From this I derived a proper conception of the bodily outline compatible with the exercise of the greatest amount of strength. I was particularly struck by the absence of all exaggeration in the muscular developments as repre-

sented. I saw by the statue that a Hercules must be free from superfluous flesh, neatly made, and finely organised—that form and quality were of more account than quantity in his formation. Some years earlier I might have been more attracted by the Apollo Belvedere, but it was a Hercules I dreamed of becoming, and the Apollo was but the incipient and potential Hercules. Another statue that shared my admiration was the Quoit-thrower. From the careful inspection of all these relics of ancient Art I obtained some valuable hints as to my own physical deficiencies. I learned that the upper region of my chest needed developing, and that in other points I had not yet reached the artist's ideal of a strong man.

Good casts of these and other masterpieces in sculpture may be had at a trifling cost. Why are they not generally introduced into our schools and colleges? The habitual contemplation of such works could not fail to have a good effect upon the physical bearing and development of the young. We are the creatures of imitation. I remember, at the school I attended in my seventh year, the strongest boy among my mates was quite round-shouldered. Fancying he derived his strength from his stoop, I began to imitate him; and it was not till I learned that he was strong in spite of his round shoulders, and not because of them, that I gave up apeing his peculiarity.

On the 29th of January, 1856, I lifted seven hundred pounds in Bailey's Gymnasium. The exhibition created surprise among the lookers-on, and at that time it was, perhaps, an extraordinary feat, but since the extension and growth of the lifting mania it would not be regarded by the knowing ones as anything to marvel at. The 4th of April following my lifting capacity had reached eight hundred and forty pounds.

On Fast-day of that year two Irishmen knocked at my door, and asked to see the strong man. I presented myself, and they told me that there was great curiosity among their countrymen in the neighbourhood to ascertain if one Pat Farren, the strongest Irishman among them, could lift my weight.

"Would it be convanient for me to let him thry?"

"Certainly, and I think he'll lift it," I modestly added.

Soon afterwards a delegation of Irishmen, rather startling from its numbers, entered my garden. Among them was Mr. Farren. They surrounded my lifting apparatus, while I, unseen, surveyed them from a back window. I saw Mr. Farren take the handle, straddle the hogshead, throw himself into a lifting posture, and, straining every muscle to its utmost tension, give a tremendous pull. But the weight made no sign, and his friends, thinking he was merely feeling it, said—

"Wait a bit; Pat 'll have it up the next pull."

Mr. Farren rested a moment, then threw off his coat, rubbed his hands, and, seizing the handle a second time, tugged away at it till his muscles swelled and his frame quivered, but he failed in starting the barrel, and a burst of laughter from his friends and backers announced his defeat.

It was now but justice to Mr. Farren to say that it could hardly be

expected of him to lift such a weight at either the first trial or the second. A want of confidence, or the maladjustment of the rope, might have interfered with the full exercise of his strength. I need not say that his discomfiture was witnessed by me from my hiding-place with the liveliest satisfaction, for I had begun to pride myself on being able to outlift any man in the country.

In May, 1856, I received the appointment of medical assistant at a lunatic asylum, and gave up for a couple of months my practice of lifting. The consequence was a rapid diminution of strength, which suggested to me a return to the lifting apparatus. Near the asylum was a large unoccupied building, formerly a House of Industry. In the cellar of this building I put a barrel, and loaded it with stones and gravel, as I had done previously. Immediately overhead, on the first floor, I cut a hole, about six inches square, and passed up a rope, attached to the barrel. This rope I looped at the end, for the reception of a handle. On the floor I nailed two cleats, between three and four feet apart, as guards to keep my feet from slipping. Beginning with about six hundred pounds, I added a few pounds daily, till I was able, in November, 1856, to lift with my hands alone nine hundred pounds.

Returning home the ensuing winter I attended a second course of medical lectures, and in the routine of labours incidental to a medical student's life omitted to develop further my powers as a lifter. In the summer of 1857 I became a practitioner of medicine. In the autumn of that year, a gentleman, who had been looking at my lifting apparatus, remarked to me:—"If you are as strong as they tell me, what is to prevent your seizing hold of me (I weigh only a hundred and eighty pounds), holding me at arm's length over your head, and pitching me over that fence?"

To this I replied, that, if he would give me six weeks for practice, I would satisfy him the thing could be done. He agreed to be on hand at the end of the time named.

In order to be sure of the muscles that would be brought into play by the feat, I procured an oblong box, with a handle on either side, running the whole length. Into the box I threw a number of brickbats; then I raised the box at arm's length above my head, and threw it over my vaulting pole, which was at an elevation of six and a half feet from the ground. Subsequently I added more brickbats, till gradually their weight amounted to precisely one hundred and eighty pounds. Having practised till I could easily handle and throw the box thus charged, I informed my challenger that I was ready for him. He came, when, seizing him by the middle, I lifted him, struggling, above my head, and threw him over the fence before he was hardly aware of my intent. As he was somewhat corpulent and puffy, and the act involved an abdominal pressure which was by no means agreeable, he expressed himself perfectly satisfied with the experiment, but objected very decidedly to its repetition.

In June, 1858, I commenced practising with two fifty-pound dumb-bells, and subsequently added one of a hundred pounds, which I was prompted

to get from hearing that one of that weight was used by a celebrated gymnast. Not having given much attention to the development of the exterior muscles of the arms for several months previous, it was several weeks before I could put this dumb-bell up at arm's length above my head with one hand. As soon as I succeeded in doing this with comparative ease, I procured another hundred pound dumb-bell, and in a few months succeeded in exercising with both of the instruments at the same time, raising each alternately above my head. I then commenced practice with a dumb-bell weighing one hundred and forty-one pounds. It consisted of two bomb-shells, connected by a handle, which, being removable, allowed me to introduce shot from time to time into the cavities of the shells. After a few months of practice I could, with a jerk, raise the instrument from my shoulder to arm's length above my head. My first public exhibition of this feat took place in April, 1860.

The spring of 1859 was now drawing nigh, and I began to think of giving a public lecture on Physical Culture, illustrating it with some exhibitions of the strength to which I had attained. My father approved the venture, but, bethinking himself of my extreme diffidence, significantly asked, *when* I would be ready to permit a public announcement of my intention. "Oh, in a few days," I replied, as if it were as small a matter for me to lecture in public as to lift a thousand pounds in a gymnasium. Weeks flew by, and still to the galling inquiry, "*When?*" I could only answer, "Soon, but not just yet." February and March had come and gone, and still I was not ready. Finally, to the oft-renewed interrogatory I made this reply:—

"As soon as I can shoulder a barrel of flour, a feat which I am determined to accomplish before an audience, you may announce my lecture."

I had then been practising some two months with a loaded barrel, so contrived that it should weigh a little more each succeeding day, and it had now reached a hundred and ninety pounds. About this time it occurred to me that, among my many experiments, I had never fairly tried that of vegetable diet. I studied the subject anew, and, conceiving that my strength had reached a stagnation point, I gave up meat, and restricted my animal diet to milk.

A barrel of flour weighs, on an average, two hundred and sixteen pounds. I, therefore, could not succeed in shouldering one until twenty-six pounds had been added to my loaded barrel. Day after day I shouldered my one hundred and ninety pounds, but could not get an ounce beyond that limit. My grand theory of the possible development of a man's strength began to look somewhat insecure.

"So fares the system-building sage,
Who, plodding on from youth to age,
Has proved all other reasoners fools,
And bound all Nature by his rules;
So fares he in that dreadful hour
When injured Truth exerts her power,

Some new phenomenon to raise,
Which, bursting on his frighted gaze,
From its proud summit to the ground,
Proves the whole edifice unsound."*

The shouldering of a barrel of flour is a feat, by the way, which many an old person will tell you that he, or some friend of his, could accomplish in his eighteenth year. It is a common belief that any stout carman can do the thing, but I have been assured by one of the oldest and most experienced that there are not, probably, three individuals in Liverpool or London who are equal to the accomplishment.

The mode of life that I had hitherto found essential to the keeping up of my strength was quite simple, and rather negative than positive. From tobacco and all ardent spirits, including wine, I had to abstain, as a matter of course. Beer and all fermented liquors had also been ruled out. Impure air must be avoided like poison. Summer and winter I slept with my windows open. Badly-ventilated apartments were scrupulously shunned. Cold bathing of the entire person was rarely practised oftener than once a week in cold weather or twice a week in warm weather. A more frequent ablution seemed to over-stimulate the excretory functions of the skin, so that excessive bathing defeated its very object. The "tranquil mind" must be preserved, with little or no interruption. Great physical strength cannot co-exist with an unhappy, discontented temper. You must be habitually cheerful, if you would be strong. With regard to diet—that was the very experiment I was trying, the experiment, namely, of going without solid animal food. With me it did not succeed. So far from gaining in strength, hardly did I hold my own. Suddenly I resolved to give up my vegetable diet, and return to beef steaks, mutton chops, and loins of veal. A daily appreciable increase of strength was soon the consequence. Within ten days I succeeded in shouldering the loaded barrel, weighing two hundred and sixteen pounds; and a day or two after that I shouldered, in the presence of our baker himself, one of his own barrels of flour.

I had now no further excuse for deferring my promised lecture. The month of May had arrived. My father delicately broached the subject of the announcement. Being a little fractious, perhaps from some ebb in my strength, I hastily replied:—

"Announce it for the 30th of May."

"What hall shall I engage?"

"Any hall in town. Why not the Music Hall?" I added, affecting a valour I was far from feeling, but, like Macbeth, I now realised that "returning were as tedious as go o'er."

Merchants' Hall was engaged for me, it being central, modest in point of size, commodious, and favourably known. At this time I was in excellent health, and weighed one hundred and forty-three pounds. But from the moment of the public announcement of my lecture my appetite for food, for meat particularly, began to fail me.

* Beattie.—*Essay on Truth.*

"How peevish and irritable he is growing!" I heard one member of the family remark to another. Soon the grocer's scales indicated that my weight was diminishing. It fell to one hundred and forty-one, then to one hundred and forty, then to one hundred and thirty-eight, and finally, when the 30th of May arrived, I found I weighed only one hundred and thirty-four pounds!

The crisis was now at hand. Do not laugh at me, ye self-assured ones, with your comfortable sense of your own powers—ye who care as little for an audience as for a field of cabbages—do not jeer at one who has felt the pangs of shyness and quailed under the imaginary terrors of a first public appearance. For you it may be a small matter to face an audience—that nearest approximation to the many-headed monster which we can palpably encounter; but for one whose diffidence had become the standard of that quality to his acquaintances the venture was perilous and desperate, as the sequel showed.

Never had time rolled by with such fearful velocity as on that eventful day. Breakfast was hardly over before preparations were being made for dinner. Small appetite had I for either. Before I had finished pacing the parlour there was a summons to tea. It was like the summons to the criminal: "Rise up, Master Barnardine, and be hanged." With a most shallow affectation of *nonchalance* I sat down at the table. A child might have detected my agitation, and yet with horrible insincerity I alluded to the news of the day, and asked the family why they were all so silent. They saw from my look that they might as well have joked with a man on his way to execution.

Having dressed and adorned myself for the sacrifice, I returned to the parlour, when the rumbling of coach-wheels, the sudden letting down of steps, and then a frightfully discordant ring of the door-bell, sent the blood from my cheeks and made my heart palpitate like a trip-hammer. "Is th-th-that the off-officer—I mean the coachman?" I stammered. Yes, there was no doubt about it.

Straightening my person, I affected a dignified calmness, and assured my dear anxious mother that I was not in the least nervous—oh, not in the least!

It was a gloomy night, and the streets wore a dismal aspect. The hall was distant about three miles, but in some mysterious manner, or by some route which I had never been able to discover, the coachman seemed to abridge the distance to less than half a mile. We are in Summer-street, before the door. Some juvenile amateurs, attracted by stories of the strong man, surround the carriage, to get a sight of him.

> "Ha! what are these? Sure, hangmen,
> That come to bind my hands, and then to drag me
> Before the judgment-seat: now they are new shapes,
> And do appear like furies!"

The words of Sir Giles Overreach, one of the parts I had studied during my histrionic *accès*, were not at all inappropriate to the state of mind in

which, with knee-joints slipping from under me, I now made my way up-stairs. Having reached the upper entry, I paused, and glanced at the audience through the windows, before entering the little retiring-room behind the stage. With an inward groan at my presumption, I passed on. To think that, but for my own madness, I might have been at that moment comfortably at home, reading the evening paper! Nay, were it not better to be tossing on stormy seas, driving on a lee-shore, toiling as a slave under a tropic sun, than here, with a gaping audience waiting to devour me with their eyes and ears?

The first thing I did, on reaching the retiring-room, was to give way to a fearful fascination, and take another peep at the audience from behind a curtain at the side-entrance. I then looked at my watch. Twenty minutes to eight! People were pouring in, notwithstanding the inclement weather. The hall was nearly crowded already. One familiar face after another was recognised. Surely everybody I know is present.

Another look at my watch. Quarter to eight! Suddenly the frantic thought occurred to me, What if I have lost my manuscript? Where did I put it? 'Tis in none of my pockets! Good gracious! Has any one seen my manuscript? Come, Jerome, no fooling at a time like this! Where have you hidden it? What! You know nothing about it? *Hunt* for it, then! Wouldn't it be a charming scrape if I couldn't find my lecture? Isn't this it, in the drawer? Oh, yes! I must have put it there unconsciously.

Being in a high state of perspiration, and wiping my forehead incessantly, I disarrange my hair. Where's that brush? No one can tell. Agony! Where's the brush? Here on the floor. Oh, yes! There! What a blaze my cheeks are in! The audience will think they are flushed with Bourbon. No matter. That manuscript has disappeared again. Confusion! Where is it? Here in your over-coat pocket. All right.

Five minutes to eight. Grasping the scroll, I rush to the side-entrance. The audience begin to manifest their impatience by applause. Suddenly I hear the bell of the old South Church strike eight. The last vibration passes like an ice-bolt through my heart. Wrought up to desperation, I thrust aside the curtain. This gives a portion of the audience a sight of me, and I hear some one exclaim, "There he is!" Horrible exposure! I dodge back out of view, as if to escape the discharge of a battery. A round of impatient applause rouses me. I count three, and precipitate myself forward to the centre of the stage.

The hall is filled—all the seats and most of the standing-places occupied. But I can no longer recognise any one. Friend and foe are confounded in an undistinguishable mass; or, rather, they are but parts and members of one hideous monster, moving itself by one volition, working its thousand eyes all at once, and ready to swallow me with a single deglutition. However, the plunge is made. The worst is over. I rallied from the shock, and in a clear, but unnecessarily loud and ponderous voice, pitched many degrees too high, I commenced my lecture.

For some ten minutes, if I may believe the tender reports in the newspapers the next day, I got on very respectably. I had won the attention of the audience. But, at an unlucky moment, a fresh arrival of persons at the door made the monster turn his thousand eyes in that direction. I mistook it for an indication that he was getting weary of my talk. My attention was distracted. Then came a suspension of all thought, an appalling paralysis of memory. Having learnt the first part of my discourse by heart, I had been reciting it without turning over the leaves of the manuscript; and now I was unable to recollect at what point I had left off, or whether I had given five pages or ten.

Frightful dilemma! Stupified with horror, I gazed intently on the page before me till the lines became all blurred, and a blue mist wavered before my eyes. Then came a panic of intense silence. The monster lying in wait for me evidently began to anticipate that his victim's time was come, and so, like a crafty monster, he remained still and patient. Who could endure a nightmare like this? I felt myself reeling to and fro. Then a pleasant thrill, like that, perhaps, which drowning men feel, ran through my frame. All became dark,—and the strong man dropped, like a felled ox, senseless on the stage.

When consciousness returned I was lying flat on my back, and several persons were bending over me.

"Keep down—don't rise," some one said.

"What has happened?" I asked.

"Nothing—only you were a little faint."

"Faint? A man who can lift a thousand pounds faint at the sight of an audience? Absurd! Let me rise."

And in spite of all opposition I rose, grasped my manuscript, walked to the front of the stage, and resumed my lecture. Alas!

> "Reaching above our nature does no good;
> We must sink back into our own flesh and blood."

I had not proceeded far before I felt symptoms of a repetition of the calamity; and lest I should be overtaken before I could retreat, I stammered a few words of apology, and withdrew ingloriously from public view. Fresh air and a draught of water, which some obliging friend had dashed with *eau-de-vie*, soon restored me; but I took the advice of friends, and did not make a third attempt that evening.

The audience, had it been wholly composed of brothers and sisters, could not have been more indulgent and considerate. One sceptical gentleman was heard to say:—

"I don't believe he can lift nine hundred pounds."

And another added:—

"Nor I, any more than he can shoulder a barrel of flour."

"Or raise his body by the little finger of one hand," said another.

Whereupon a venerable citizen, a gentleman long known and respected as the very soul of honour, truthfulness, and uprightness, came forward on

the stage before the audience, and with emphatic earnestness, and in a loud, intrepid tone of voice, exclaimed :—

"Ladies and gentlemen,—The heat of the room was too much for the lecturer; but he can easily do all the feats announced in the bills. *I've seen him do them twenty times.*"

The dear, but infatuated old gentleman. He had never seen me do anything of the kind. He hardly knew me by sight. He thought only of coming to the rescue of an unfortunate lecturer, prostrated on the very threshold of his career; and a friendly hallucination made him for the moment really believe what he said. His unpremeditated assertion must have been set down by the recording angel on the same page with Uncle Toby's oath, and then obliterated in the same manner.

Ten days after the above-mentioned catastrophe, having engaged the largest hall in ———, I delivered my lecture—in the words of the newspapers—"with *éclat*." The illustrations of strength which I exhibited on the occasion, though far inferior to subsequent efforts, were looked on as most extraordinary. The weight I lifted before the audience, with my hands alone, was nine hundred and twenty-nine pounds. My success induced me to repeat my lecture in other places.

To return to my lifting experiments, I had promised my father to "stop at a thousand pounds." In the autumn of 1859 I had reached ten hundred and thirty-two pounds. An incident now occurred that induced me to reconsider my promise and get absolution from it. One day, while engaged in lifting, I had a visit from two powerful-looking men, who asked permission to try my weight. One of them was five feet ten inches in height and a hundred and ninety-two pounds in weight. The other was fully six feet in his stockings and two hundred and twelve pounds in weight,—a fearful superiority in the eyes of a man under five feet seven, and weighing less than a hundred and fifty pounds. The smaller of these men failed to lift eight of my iron disks, which, with the connections, amounted to eight hundred and twenty-seven pounds. The larger individual fairly lifted them at the second or third trial, but declined to attempt an increase. They left me, and I soon afterwards heard that they were practising with a view of "outlifting Dr. Winship."

My father had incautiously remarked to me, "Those huge fellows, with a little practice, can lift your weight and you on top of it. You can't expect to compete with giants." This decided me to test the question whether five feet seven must necessarily yield to mere bulk in the attainment of the maximum of human strength. I had the start of my competitors by some two hundred pounds, and I determined to preserve that distance between us. In the autumn of that year I advanced to lifting with the hands eleven hundred and thirty-three pounds, and in the spring of 1860 to twelve hundred and eight pounds. I have had no evidence that my competitors ever got beyond a thousand pounds; though I doubt not, if they had had my leisure for practice, they might have surpassed me.

In July, 1860, I commenced lifting by means of a padded rope over my shoulders; my body, during the act of lifting, being steadied and partly

supported by my hands grasping a stout frame at each side. After a few unsuccessful preliminary trials, I quickly advanced to fourteen hundred pounds. The stretching of the rope now proved so great an annoyance, that I substituted, first, a stout leather band of double thickness, about two inches and a half wide, and which had been subjected to a process which was calculated to render it proof against stretching more than half an inch under any weight it was capable of sustaining; but, on trial, I found, almost to my despair, that it was of a far more yielding nature than the rope, and consequently the rope was again brought into requisition. A few weeks of unsatisfactory practice followed, when it occurred to me that an iron chain, inasmuch as it could not stretch, might be advantageously used, provided it could be so padded as not to chafe my shoulders. After many experiments, I succeeded in the substitution, but the chain had yet one objection in common with the rope and the strap, arising from the difficulty of getting it properly adjusted. I contented myself with its use, however, until the spring of 1861, when I hit upon a contrivance which has proved a complete success. It consists of a wooden yoke, fitted across my shoulders, and having two chains connected with it in such a manner as to enable me to lift on every occasion to the most advantage. With this contrivance my lifting power has advanced with mathematical certainty, slowly, but surely, to *two thousand and seven pounds* up to this 23rd day of November, 1861.

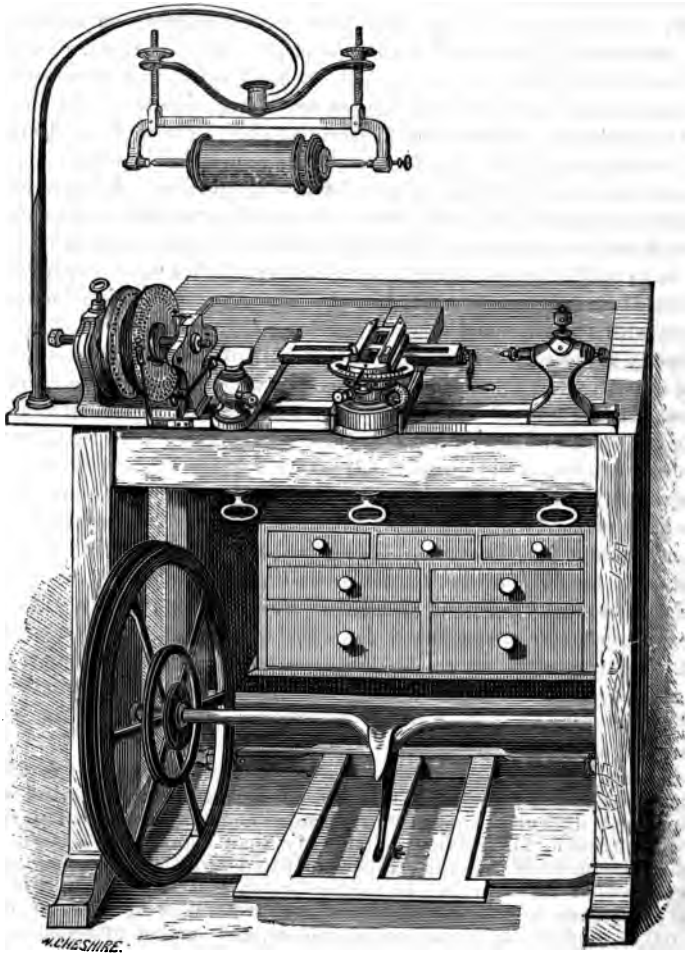
In my public experiments in lifting, when I have not used the iron weights cast for the purpose, I have, as a convenient substitute, used kegs of nails. It recently occurred to me that, if, instead of these kegs, I could employ a number of men selected from the audience, the spectacle would be still more satisfactory to the sceptical. Accordingly I contrived an apparatus, by means of which I have been able to present this convincing proof of the actual weight lifted. The following account of the result appeared in one of the newspapers:—

"Standing upon a staging at an elevation of about eight or ten feet from the floor, the doctor lifted, and sustained for a considerable time and without apparent difficulty, a platform suspended beneath him, on which stood twelve gentlemen, all heavier individually than the doctor himself, and weighing, inclusive of the entire apparatus lifted with them, *nearly nineteen hundred pounds avoirdupois*. In the performance of this tremendous feat Dr. W. employed neither straps, bands, nor girdle, nothing, in short, but a stout oaken stick fitting across his shoulders, and having attached to it a couple of rather formidable-looking chains. At his request, a committee, appointed by the audience, and furnished with one of Fairbank's scales, superintended all the experiments."

The exact weight lifted on this occasion was eighteen hundred and thirty-six pounds. A few evenings after I lifted, in the same way, eighteen hundred and sixty, eighteen hundred and ninety, nineteen hundred and thirty-four, and nineteen hundred and forty.

As my strength is still increasing in an undiminished ratio, I am fairly beginning to wonder where the limit will be, and the old adage of the camel's back and the last feather occasionally suggests itself. I have fixed three thousand pounds as my *ne plus ultra*.

THE ART OF TURNING.



TURNING is an art which possesses many features that render it worthy the notice of every intelligent youth. As an in-door occupation it has no superior, affording an agreeable relaxation from study, or sedentary pursuit of any kind; and while it demands quickness of eye and dexterity of hand, it exercises taste, stimulates ingenuity and the inventive faculties, and it affords a convenient channel for the development of that creative power which every active mind possesses and seeks to exercise.

On the score of health, too, turning has much to recommend it, being an occupation that demands a moderate exercise of the muscles of the chest,

arms, and legs, as in walking, so that when inclement weather forbids out-of-door exercise, turning affords a convenient and excellent substitute.

Such an occupation cannot fail to exercise a beneficial influence on the habits and character of youth who engage in it, well calculated to effect a permanent advantage. With a little patience and perseverance the difficulties that first present themselves to the tyro may be quickly overcome, and the probability is, that the first success will render him an enthusiast in the art of turning.

Turning is the shaping of plastic materials in a machine called a *lathe.* Wood is the material most commonly operated upon, but numerous other substances are also turned in the lathe, such as ivory, bone, horn, tortoise-shell, marble, stone, alabaster, jet, glass, and the metals.

The *turner* fabricates an endless variety of articles: it would be impossible to enumerate them all. We may, however, mention some of the most common, such as boxes for various purposes,—among which snuff-boxes, toilet, and pill-boxes are the most familiar; chessmen, draughtsmen, wheels, bedposts, the legs and arms of chairs, tables, and other articles of furniture; sheaths, cases, netting-pins, spools, reels, rolling-pins, screws for presses, billiard balls, egg-cups, pestle and mortars, tops, skittles, air-guns, walking-canes, flutes, and other musical instruments, &c. Cannon are also bored and finished in the lathe. The Chinese concentric balls, which so greatly excite our admiration and wonder, and chains of wood and ivory, are among the marvels of the lathe.

The art of turning is indispensable to many trades, such as the cabinet-maker, toy-maker, match-maker, goldsmith, lapidary, joiner, engineer, machinist, gun-maker, and others. It is an art of infinite importance, inasmuch as it greatly contributes to the perfection of other arts; for without it the astronomer and scientific observer would not be able to obtain the requisite accuracy in the apparatus employed in their researches.

But we must in this place speak of the art of turning as a recreation and occupation for youth. Every one possessing a taste for mechanical pursuits, may derive much pleasure and profit from the practice of this art, without attempting its difficulties and mysteries. Turning is a simple art, upon which any amount of difficulties and complexities may be engrafted; but at present we shall confine ourselves to a description of the simpler processes in turning, for it is with them that the greater number of objects required may be obtained, including the most useful.

The Workshop. The lathe should be placed in a well-lighted room, neither too much exposed to the sun nor to damp. The light should enter on the right of the turner, or directly opposite to the machine. A northern aspect is to be preferred.

The lathe should be immovable, firmly screwed to the floor, and neither too high nor too low. If it be placed too high, the little chips constantly thrown off by the cutting tools will fly into the turner's eyes: if, on the contrary, it be placed too low, the turner will be obliged to stoop in order to see his work properly, which will cause him unnecessary fatigue.

The Lathe. Lathes are contrived for different purposes, such as square turning, oval turning, eccentric turning, elliptic turning, epicycloidal turning, &c.

The simplest form of lathe is the potter's wheel, which, however, works upon a vertical axis. In the art of turning, proper, the axis is placed in a horizontal position, and by suitable additions to the simple machine, called *chucks*, oval, elliptic, eccentrics, and other complex forms, in addition to the ordinary circular turning, are produced.

The foot-lathe is that form of the machine adapted to all ordinary work, whether in wood, ivory, or metals. Still, it is an imperfect machine, inasmuch as its products are continually liable to be deteriorated by any unsteadiness of the turner's hand. This defect has led to the contrivance of

The slide rest, by which the cutting tools are kept steady and firm in the required position, withdrawn at pleasure, and replaced in the original position. This valuable appendage is now attached to all but the commonest kind of lathes.

The principle of the slide-rest is, that the cutting tool is fastened to a metal plate, instead of being held in the hand. It is moved in any required direction by means of screws. The slide-rest is of great value in producing any number of pieces of work of exactly the same form, or of opposite forms, fitting into each other, and of any given proportions. Each slide-screw is fitted with a small circular graduated plate, and sometimes also with a micrometer screw and plate; so that the greatest nicety can be obtained.

Tools. The tools employed in turning vary in form, according to the purpose to which they are applied, and although very numerous for the wants of the skilled turner, the young turner, who will at first confine himself to working in soft woods, will require only gauges and chisels, these being the most indispensable and frequently employed. Drills, screw-rules, and formers are supplementary aids.

Turning tools are set in very long handles, to give the turner the power to prevent the tool *dipping* or trembling: this he accomplishes by placing the upper portion of the tool-handle under his arm, and pressing it close to his side.

The hard woods, ivory, bone, and the metals, can hardly be said to be *turned*; they are shaped by *shaving off*. For this purpose the gauges and chisels employed are smaller, and sharpened at a less acute angle. *Gravers* also are employed, with square, round, or triangular mouths.

For inside work, *drills* placed in angles are employed to make the first opening, which is afterwards enlarged by other tools.

Screw tools are very important appendages to a lathe, and in constant request by the engineer. A circular saw is often fitted to a lathe, particularly for ivory turning. A parallel rule is fitted upon the table by the side of the saw, to regulate the width of the pieces to be cut off.

(To be continued.)

THE WONDERS OF THE OCEAN.

MY AQUARIUM.

ON the 10th of May, 1857, I became the glad possessor of a tank capable of holding thirteen or fourteen gallons of water. Its substantial frame of well-seasoned oak, its stout plank bottom, lavishly covered with cement, promised to resist alike the heat and dryness from without and the wet within. The sides and ends of double flint-glass seemed to invite the eye across their clearness. Its chosen site was at a south window, so shaded by a wing of the house as to receive only the morning sun for about two hours; and clustering vines overhung the window, so that the beams fell in chequered light. Al was now ready.

A few fragments of white quartz were arranged in rude imitation of ocean recesses, and in their fissures were placed four or five small plants of Enteromorpha and Corallina. Sand was strewn upon the bottom, to the depth of two inches, and ten gallons of sea-water were then poured in. On the day after the tank was filled I began to introduce the animals to their future home. Ten Buccina were first put in possession, in the hope that they would perform the part of gardeners to the young plants. On the second day seven Actiniæ were disposed upon the rock-work. On the third, a Horsefoot (or, as some call it, a King-Crab, though of most unregal aspect), was allowed to make his burrow in the sand. On the fourth day, four Hermit and Soldier-Crabs, and two Sand-Crabs, were invited to choose their several retreats. On the fifth, three fine Sticklebacks and three Minnows were made free of the mimic ocean; and on the sixth, an Eel and two Prawns.

All seemed well until the evening of the eighth day, when a small white cloud was seen rising from the bottom. The spot was searched for some dead member of the new colony; but none was found, either there or in any other part of the tank.

Supposing that the impure gas might be generated by the decay of minute creatures congregated in the cloudy corner, a lump of charcoal was tied to a stone and sunk upon the spot. Next morning the cloud had cleared from around the charcoal, but slender wreaths of similar appearance were rapidly rising from the sand in every other part of the Aquarium. The fishes came oftener to the surface than they were wont, and all the animals had lost vigour.

Aëration was resorted to, which was performed by dipping up the water, and pouring it back in a thin stream from a height of several feet, continuing the operation for ten minutes. This was repeated four or five times during the day, and at night more charcoal was added. Some of the pieces were sunk to the bottom, and others were suspended at different depths in the water.

Two or three days passed in this way,—the putrescence kept in check by

the means used, but not entirely overcome. Meantime, though none of the stock had died, there was less vitality than at first, especially each morning, after seven or eight hours unaided by aëration.

Tired of what seemed an ineffectual struggle, I determined to leave the Aquarium untouched for a day, and await the result. Accordingly, the charcoal was withdrawn and aëration discontinued. The milky cloud increased in density, and the whole mass of water became turbid. The fishes kept constantly near the surface, swam languidly, and snatched mouthfuls of atmospheric air. The Eel became bloodshot about the gills, and, writhing, gasped for breath. The Soldier-Crabs hung listlessly from their shells, and no longer went about in quest of food. Even the Actiniæ shrank to half their former size; and the Buccina, crawling above the water, ranged themselves in a row upon the dry glass.

Disappointed, but not discouraged, I filled several shallow pans with pure sea-water, clean sand, and fresh plants, and transferred to them my suffering and well-nigh exhausted animals. A day restored them to their normal condition, and now I was ready to begin my Aquarium anew.

But to what purpose should I begin anew? Would there not be the same failure? What had been wrong?

At least two great faults were evident. First, in order to guard against the possibility of a leak, the bottom and posts of the tank had been covered with many coats of an alcoholic varnish. Now it was probable that time enough had not elapsed between the several applications for the thorough evaporation of the alcohol. Might not its gradual infusion in the water have caused the death of the animalcula in such numbers as to taint the whole by their decay?

The second fault was, strewing upon the surface of the sand a handful or two of white powdered quartz, which, from having been pulverized in an iron mortar, was so oxydized as to turn a deep yellow. This might have poisoned the animalcula.

The first fault seemed to me to be the chief, but I proceeded to remedy both. The whole contents of the tank being removed, it was thoroughly washed on the inside, exposed for several days to the sun and air, and then soaked for twelve hours in clean sea-water. This being thrown away, the stones, scalded and well washed, were restored, and clean sand replaced the old.

Water was drawn from the dock at high tide; but it was less clear now, on the 4th of June, than that which had been got early in May. This surprised me not a little; for, as I stood upon the wharf and looked down into it just before sunset on the previous evening, I was struck with its beautiful limpidity. Curious to see if its aspect remained unaltered, I went to the same spot where I had stood the night before. The tide was at the same height, but twelve hours had made a marvellous change in the appearance of the water. Its sparkling clearness had given way to greenness and turbidity, and no object could be seen a foot below the surface. No storm had stirred its depths during the night,—why this change?

Conjecture was of no practical utility, and I returned home satisfied that my fifteen gallons of water were as clear as any it was then in my power to obtain. Covering the tub from the dust, I left it to settle until sunset. Then the ever-useful siphon drew off two-thirds of it tolerably clear, leaving a thick green deposit upon the sides and bottom of the vessel. Next day it was again drawn off from the sediment (at this time small in quantity), and poured into the tank. Several newly-obtained plants of well-growing Enteromorpha and Corallina were arranged among the stones, and the Aquarium was left at rest. Gradually the water became nearly clear, but not perfectly so until after the introduction of animals.

Eight days after it was filled the Actiniæ were put in; on the ninth, several small Molusks; on the tenth, Crustacea; and on the eleventh and twelfth, other varieties of the same types; but not until the fourteenth day were fishes ventured upon.

Day by day the water grew clearer and clearer, until, at the end of three weeks, it was beautifully translucent. Three more weeks passed, during which the beauty of the Aquarium was much heightened by a luxuriant growth of Confervæ, mingled with Enteromorpha, which together covered all those parts of the stones which received a direct light. The mimic rocks seemed draped in green velvet, and in the sunlight were studded with pearly bubbles. There was, however, one blemish; the hungry crabs had so nibbled the larger plants that it was deemed necessary to renew them, in order to secure a sufficient supply of food and oxygen. Accordingly, a fine specimen of Enteromorpha was added. It consisted of five or six delicate fronds about five or six inches in length, and these soon increased to treble their original number and twice their original size. At the end of about two weeks they suddenly became covered with a dull bluish mould, at the same time ceasing to give out bubbles; and the whole plant, instead of rising to the surface of the water as hitherto, hung limp from the fissure where it was placed, and trailed upon the sand. Coincidently (was it consequently?) a greenish tinge pervaded the water, speedily increasing in depth and opacity. In five days no object could be discerned six inches from the glass, and my beautiful Aquarium was transformed to an unsightly ditch.

Yet the water was apparently pure, and the activity of its inhabitants was in nowise lessened. What was this vexatious greenness? Was it animal or vegetable? Was it the diffused spores of the perfected Enteromorpha, or of the rank Confervæ upon the stones? If neither, what was its cause?

Excess of light was the most obvious suggestion; and so it was supposed that its exclusion might be a potent remedy. Therefore a double curtain of glazed muslin was stretched across the window; and the tank, both top and sides, wrapped in folds of paper. A week of darkness changed the deep green to a dingy olive. But the experiment could not be continued. The nightly admission of air, by lifting the paper covering, was insufficient to maintain the imprisoned creatures. They were happy, though captive,

while in a mimic ocean, but miserable in a dark dungeon. Languid and spiritless they lay supine, or crawled listlessly and aimlessly about. This would not do, and so light was again admitted freely to all but one side of the tank; there a screen of yellow paper intercepted the direct rays of the sun, while upon the top they fell through the foliage of a Clematis vine.

Three weeks more wrought a slight change for the better, but it was too slight and too slow for my patience, or that of curious friends waiting to see my Aquarium.

The second experiment had failed, and so once more the tank was emptied. Two or three animals only had died; all the others gave evidence health. Again they were removed to other vessels, and again I began anew.

Clean sand, clean stones, water drawn at high tide and carefully decanted, three small plants of Ulva Latissima, with one clump of Corallina Officinalis, made up the contents of the tank, when, on the 10th of August, it was the third time filled. A sheet of yellow paper was placed between the tank and the window, and it was left three days at rest. At the end of that time, the water, which was beautifully clear when introduced, had grown a little hazy, and as the sunbeams fell aslant it, the unaided eye could perceive a multitude of minute whitish creatures darting forward and backward like a swarm of bees. Then five Actiniæ were laid upon the rocks, to which they at once adhered, spreading out their restless tentacles in busy seizure of the tiny prey. In a week more the foggy appearance had ceased; but the clearness of the water was marred by the slimy exudation from the Actiniæ. Knowing that this matter was eaten by some of the Crustacea, five or six small Soldier-Crabs were dropped in, which faithfully performed their allotted labour. From this time animals were added daily, until they had reached to thirty in number. On the 15th of September a fine specimen of brown Chondrus Crispus was added, and on the 30th a very large frond of Ulva Latissima. A great portion of the Chondrus decayed at its junction with the shell on which it grew, and fell off; but the Ulva increased much in size as well as in depth of colour and firmness of texture.

And now months have gone by, and at last my Aquarium is successful. Fifty lively denizens now sport in the crystalline water, and come at the daily roll-call. Come with me and I will introduce them to you. A fig for scientific nomenclature: you shall know them by their household names.

This Bernhard Crab in the front, so leisurely pushing away the sand before him with his broad flat claws, quietly enjoys the meal he finds, undisturbed by fears of a failing supply. There is less of enterprise than complacency in his character, and I call him Micawber, for he is always expecting "something to turn up." Twice since March has he changed his coat, and thrown off his tight boots and gloves for new ones. The disrobing seemed to give him little trouble, though he sat dozing at the door of his cell some hours after, as though fatigued by the unusual effort. Very becoming is the new costume; and the red coat is prettily relieved by the grey tint of his Diogenes-like dwelling.

There goes a military cousin of his, striding along, with his heavy armour

clattering against the glass as he walks. A pugnacious fellow is that same soldier; and if he meet an opponent you may see the tug of war. Should he chance to prefer the other's shield to his own, he will seize him in his burly arms and shake him from under its protection. Yet he is cautious withal; for though obliged to doff his own armour before he can try that of his denuded foe, he retains hold of both until satisfied with the trial. If he likes the new mail he will march off with it: if not, he will array himself in his own again. Meanwhile the vanquished combatant waits tremblingly the result of his examination, glad to get possession of the rejected defence, be it which it may.

Yon dark little crab with the bulky claws, so gaily mottled with yellow and black, lurks in that hole at the base of the cliff nearly all day long. His name is 'Possum; for at the slightest sign of danger he doubles up his claws like a dead spider, and lies in feigned lifelessness.

Speaking of spiders,—here are two Spider-Crabs, the very monkeys of this aqueous menagerie. The small one climbing the post is Topsy. There she is, sliding down again, and with headlong pace is now scampering over yon yielding Anemone. Heedless of its hundred arms, so generally dreaded and avoided, she jumps this way and that across its wide mouth; and now, seated on its back, she snatches morsels from its shrinking side. Now look at her sister sprite, Crazy Kate. Her head adorned with a long plume of Coralline, she is tearing ribbon-like shreds from the silky lettuce, and hanging them upon her already fantastic person. Anon she dances in mad glee, and next her arms are solemnly stretched upward in grotesque similitude to one in prayer. When she is hungry she will, one by one, take off those weedy trophies from her back and feed upon them.

Why do you start? That is not a sea-serpent winding from under the arch, but only an innocent Eel. Yet innocent and tiny though it be, there is something frightful about it. Its fixed, staring eyes, its snake-like stealthiness, bid you be on your guard. Sometimes it rises behind that bushy Carrageen, and, with high uplifted head, peers over at me in such a way that I am half afraid. It is so like the old picture of Satan tempting Eve.

Would you like to see an Actinia eat? I will drop a bit of raw oyster upon its outspread disc. See with what eager start it closes its fingers about the dainty viand, passing it along slowly, but surely, to its now gaping mouth, while every nerve is vibrating with the anticipated pleasure of the feast! That milk-white one is my favourite, and I call it Una. Seated in modest contentment on that brown stone seat, she upturns her pure face to the mild light of evening; but folds her arms, and bows her head, and veils herself, when the noon-day sun gazes too ardently upon her.

This one, in the rich salmon-coloured robe, has all our national propensity for travelling. Wandering restlessly about, she never remains two days in the same spot. Yesterday, she climbed the cliff, and sat looking off upon the water nearly all day long. To-day she has come down to the sand, where, with base distended, as if in caricature of crinoline, she perambulates the crowded thoroughfare.

Here is Semi-twin, one base and two trunks. Shall I call it Janus for its two faces? Or will Chang-and-Eng best distinguish this dual unit? Sometimes one, with tentacles in-tucked and mouth sealed, seems dozing; while his waking brother is busily waving his arms for food. At another time, you may see them both folded together in sleep, like the babes in the wood, all bestrewn with leaves.

Ah, you should have seen my Amphitrite! She bore her plumy crown so grandly, you would have said she was indeed the queen of Actiniæ; but, alas! she could not brook imprisonment, and, pining for the unrivalled grottoes of Poscidon, she drooped and died.

Behind that sheltering rock, and over-hung with sea-weed, there is a dark, deep cave, the chosen abode of Giant Grim. Push one of those Soldiers to the mouth of the den and await the result. At the first movement made by the unwitting trespasser on guarded ground, two long flexile rods are thrust out reconnoitering right and left. Two huge claws follow, lighted up by two great glaring eyes. At last the whole creature emerges, seizes the intruder, and bears him swiftly away far beyond his jealously-kept premises. With dogged mien he stalks gravely back to his stronghold. You exclaim, "It is a lobster!" A lobster truly; but saw you ever a lobster with such presence before? Does he resemble the poor bewildered Constaceans you have seen bunched together at a fish-stall? Bears he any likeness to the innocent-looking edibles you have seen lying on a dish, by boiling turned, like the morn, from black to red.

Those ghost-like Prawns are near relatives of the Giant. See them gliding so gracefully from under the arch, disappearing under the waving Ulva, and floating into sight again from behind the cliff. At night, if you look at them athwart a lighted candle, their eyes are seen to glow like living rubies. As they row silently and swiftly towards you, you might fancy each a fairy gondola with gem-lighted prow.

A quick dashing startles you, and you see a Scallop rising to the top of the water with zigzag jerks, and immediately sinking to the sand again on the side opposite that whence it started. There it rests with expanded branchiæ and moving cilia; a rude passer-by jostles it, and, with startled sensitiveness, it shrinks from the outer world, and hides behind a strong mask.

The small greenish, rough-coated creature, so like a flattened burr, is an Echinus. It is hardly domiciliated, being a new-comer, and creeps restlessly across the glass.

Under this sand-mound some one lies self-buried, not dead, but only hiding from the crowd in this bustling watering-place. He must learn that there is no lasting retirement in Newport; so tap with a stick at his lodging. With anger vexed, forth rushes the Swimming-Crab, and dashes away from the unwelcome visitor. As if he knew a bore to be the most persistent of hunters, he plies his paddles with rapid beat until far from his invaded chamber. His swimming is more like the fluttering of a butterfly than the steady poise of a fish. Pretty as is his variegated coat by day, it

is far more beautiful by night; then his limbs shine with metallic lustre, and every joint seems tinged with molten gold.

I could spend the day in showing you my Aquarium—the merry antics of the blithe Minnows; the slow wheeling of the less vivacious Sticklebacks; the beautiful siphon of the Quahang and the Clam; the starry disc of the Serpula; the snug tent of the Limpet; the little proboscis of the busy Buccinum; the erect and rapid march of his little flesh-tinted cousin; the slow Horsefoot, balancing his huge umbrella as he goes; the —— but I cannot name them all.

Neither could you learn to know them at a single visit. Come and sit by this indoor sea, day by day, and learn to love its people. Many a lesson for good have they taught me. When weary and disheartened, the patient perseverance of these undoubting beings has given me new impulses upward and onward. Remembering that their sole guide is instinct, while mine is the voice behind me, saying, "This is the way," I have risen with new resolve to walk therein. Seeing the blind persistency with which some straying zoöphyte has refused to follow other counsel than its own, I have learned that self-reliance and strength of will are not, in higher natures, virtues for gratulation, but, if unsanctified, faults to blush for. Finding such creatures here so fitted with organs and instincts for the life it was meant to lead, I have considered that to me also is given all that I ought to wish—more than I have ever rightly used.

New evidences are here disclosed to me of God's care for his creation, deepening my faith in the fact that He is not merely the great First Cause, but still the watchful Father.

New revelations teach me of His sympathy in our joys, as well as of His care for our necessities. The Maker's love of the beautiful fills me with gladness; and I catch new glimpses of those boundless regions where the perfection of His conceptions has never been marred by sin; and where each of us who may attain thereto shall find a fitting sphere for every energy —an answering joy for every pure aspiration.

HUMAN LIFE.

Hope writes the poetry of the boy, but memory that of the man. Man looks forward with smiles, but backwards with sighs. Such is the wise providence of heaven: the cup of life is sweeter at the brim, the flavour is impaired as we drink deeper, and the dregs are made bitter that we may not struggle when it is taken from our lips.

HALF-WITTED PEPE.

A SWAMP, although interesting to naturalists, is an uninviting spot for a residence; and this infirm little house has the air of being aggrieved that it is not allowed to display its proportions in a more favourable situation. When the wind blows it always sighs; and when the sky is fair and bright, and the unsteady building can find no voice, the frogs gather about its foundations, and, inspired by a long and uninterrupted friendship, take up the work of complaining.

It has an old stove-funnel for a chimney, from which rises an almost imperceptible curl of faint smoke, not suggestive of a warm peat fire, or the savory smell of a poor man's wholesome dinner. By the low door there is "ne'er a flower at all;" and instead of a neat plank safely leading across the gaping ditch to the railroad, which stretches far out of sight on the clayey ridge above, the slimy trunk of a rotten tree bridges the noisome water.

Listless travellers on the long Eastern journey, whiling away the tedious hours as best they may, with unmoved eyes look lazily over the swamps; but when just ahead they spy this small shed of a house, set up on high posts, like miniature wharf-piers, to keep it above the water, they open their eyes a little wider, and enjoy a reviving laugh; for something queerer than the house and odder than the taste which selected its site never fails to meet the gaze of the left-hand tier of passengers.

On the driest side of the building, where gravel is mingled with the spongy soil, some daring horticulturist has projected a garden; among abortive efforts of potatoes and shrunken cabbage heads, half a dozen bean-poles rise prominent; the sad, withered vines, with scarce strength to cling to their supporters, add no air of cheerfulness to the dank region.

The most phlegmatic trader going to transact dry business in Bangor or St. John's looks up from the newspaper, and feels an involuntary trickle of pity for the unfortunate somebody who calls this most depressing spot home.

For the tallest bean-pole a stout young hickory yielded its life; and the unconscious remains of the poor sapling, once so proud of its verdant dress, have now hardly a drooping leaf to hide their nakedness. It stands like a stunted liberty-pole, but surmounted just now by a figure altogether unlike the American eagle. A ragged coat-tail flutters in the breeze; beneath the shadow of tangled red hair a speckled face looks enthusiasm and exultation, as a brimless hat is flirted furiously round it; the other rough, scratched hand and the two grimy bare feet cling tenaciously to the smooth pole.

One would think that this ungainly creature could never have seen a steam-engine before, so wonderful is his ardour. But Perez came into the world with its shrill whistle drowning his voice. His first achievement in creeping brought him to the door to see the great monster hurrying by. As

ive months matured his powers, he stole out of bed at grey dawn to mystery good morning. He woke up in the night to find his cross-cot vibrating with its heavy march. The great red eye which glared a the window in the early evening followed him in his dreams. He l bread and butter and forsook mud-houses when his ear fist caught ant rumble. The restless, panting engine was the genius of his

morning in spring the first sweet notes of the birds were making nter-bound hearts; the ground was moist with escaping frost, and een shoots showed themselves amidst the faded grass of last year. r, dead-looking branches were bursting out in soft buds, and the eemed growing young again. Ripple, ripple, went the water in all ar ponds, with a sheen of mellow sunlight softening its blue; the d tree boughs crinkled and twisted like snakes; under matted leaves ottom gay little trout pushed their heads, and then darted up again bright surface. Contented cows come down to the brink for a ing draught, and cast uncertain shadows in the wavering depths.

ll the villages the white houses and green blinds were clean and rom April showers; even the dull bricks and stone pavements of ooked as if they might have a fresh corner for a cheerful blade of r a bright clover blossom.

bogs around the little house perched up by the railroad felt that r was coming; delicate feathers of new-born moss peered between gled briers; black snags and unsightly weed-stalks were beautified e tender touch of spring. The frogs protruded one goggle-eye from et hiding-place, and croaked with uncommon melody. The turtles d their unwieldy shapes up from the bottom of the trench, and, fast to decayed roots or slippery stones, dried their glistening nd sunned their black heads and cold feet, with a stupid enjoyment and slender green snakes coiled in and out among the alder bushes. a foggy mist arose from the pools and tempered the sunshine, and the here was never pure or transparent. A thick scum settled on the , and ugly insects crawled over poisonous-looking leaves which on the surface.

morning, Perez, with a spotted flower from the fens in his tattered hole, sat quiet and watchful on the log crossing the water. His eyes were fixed on the point where the black rails seemed blended, trees met in an indistinct arch above. So he sat every day in the zing beneath a blue sky on the clear perspective of the landscape, ning his eyes through rain and fog, eager for the appearance of this dous friend or foe—he knew not which to think it. As the jar of the ich he was quick to detect, and the cloud of steam obscuring the t, betokened its approach—while the snakes retreated to their holes, frogs and turtles plumped into the ditch, he fled to his look-out, eted its coming with acclamations.

to-day something was amiss on the road, and the lordly engine

veered from its straightforward course. Rattling and crashing, the cars slipped aside, and the frightened passengers poured down the steps. While the men were congratulating each other upon their fortunate escape from harm, and the women were straightening their bonnets and shawls, a white, patient face, with a great bruise on the temple, shaded by a jammed hat with blue ribbon, made its way from a deserted car.

On a projecting sleeper Perez stood, blinded with flying sparks and the vaporous breath of the angry engine, and nearly stunned with astonishment and fright. He thought that the great dazzling ball which rose over the meadows and shone through the early fog must have fallen from the sky. He was questioned by one, ordered by another, and jeered at by a third; but in his bewilderment and confusion he was unconscious of it all. This unprotected little figure, so childlike and yet so womanly, aroused his torpid senses. With a quick instinct he stepped towards her, and proffering his wilted blossom, and pointing with one cinder-stained hand toward the melancholy house at his side, asked her to go home with him. Her hand, as it received the flower, reminded him of the wreaths of snow which, a few months ago, whirled over the landscape; and the eyes which smiled into his made him think of the stars as they gleamed and twinkled at night. A new wonder had dawned upon Perez, and even the fearful engine was forgotten in its gentle fascination.

The clamorous crowd barricaded the door where he and his grandfather, the old shoemaker, lived by themselves; but Perez made a path through them all for his fair, soft-voiced companion.

Before many hours the train moved on, carrying the travellers with it. And when the light faded from the sky, and the night wind muttered over the swamp, Perez was alone on the wooden door-step with an undefined sense of calm, holy influences, of sweet, helpful smiles, and of music in the air. The next day he neglected the cars for the first time, and wandered over the bogs and fields, looking for—he hardly knew what—some flower, he rather thought, but whiter and more fragrant than any he could find. The men at work on the railroad were surprised to see "half-witted Pepe" so silent and thoughtful. He picked up the rusty iron, and helped to drive the spikes, and asked them if they had seen her, and if they knew where she was. But they only laughed and wondered what the poor foolish boy was thinking of now. He sat down on the timbers and talked to himself. "She spoke me kind," he said, remembering the rude men.

Two years before, in front of the shoemaker's home, an Irish labourer was crushed by the remorseless iron wheels; being friendless he was buried beside the stone-wall in a meadow hard by. Here Perez was wont to repair, to lie down in the grass by the grave, and wonder how it would seem to be dead. He did not dread the event, he only thought of it with common curiosity; but now he had a dull perception of some meaning in life. His ear had caught a few chance notes of a sweet tune, and with an uncomprehended pain he listened for more.

He stood by the uneven mound, and trembled as he thought of lying stiff

and lifeless; and yet there was a hot perplexity in his imperfect mind which made him long for the moist earth and cool dew.

He mounted his pinnacle in the garden with a sad heart, for the long train of cars never brought him what he looked for; and instead of leaping fantastically, as he had been used to do, from one sleeper to another, and balancing his ill-shapen figure on the narrow rails, he walked up and down with slow, weary step, trying to recall a picture of fluttering beauty, and strange words of vanishing melody, all of which escaped him as he fancied he was about to make them his own.

One day, while occupied in this elusive search, he picked up from beside the track a white, stainless flower—a fresh, half-opened lily, with the porous stem still moist from its native pond.

Perez had only seen before the tainted swamp flowers, and this pure revelation of nature he at once connected with the memorable gleam of beauty which for a moment had lighted his way.

So he hid it in a little grotto which he built of stones, and each day laid around it the fairest blossoms he could collect.

At this altar Perez worshipped. It was his one tangible hold upon the only angel—albeit she had folded wings—which ever crossed his path. His devotion knows no want; grasping firmly the single hint of Heaven which has fallen to his share, he sends upwards a happy yet mournful incense of thanks and supplication.

And the messenger whose breath opened the soiled outer petals of Perez's life, revealing the rich, unsullied tints within, had looked for the last time into the reddish-brown eyes which answered hers with so strange a sympathy, and with so earnest an appeal. She was whirled away with the impatient crowd, that was glad to leave even in memory the scene of what had been to them only a misfortune. The blue ribbons of her hat floated sadly through the open window, and her gentle glance turned wistfully toward the morass, where the slanting rays of the sun made the fog a crimson haze.

She had found in this out-of-the-way spot a groping soul to which she was the light—an outcast from worldly advantages, in whose sky there was but one beclouded star, but who faithfully followed its flickering ray.

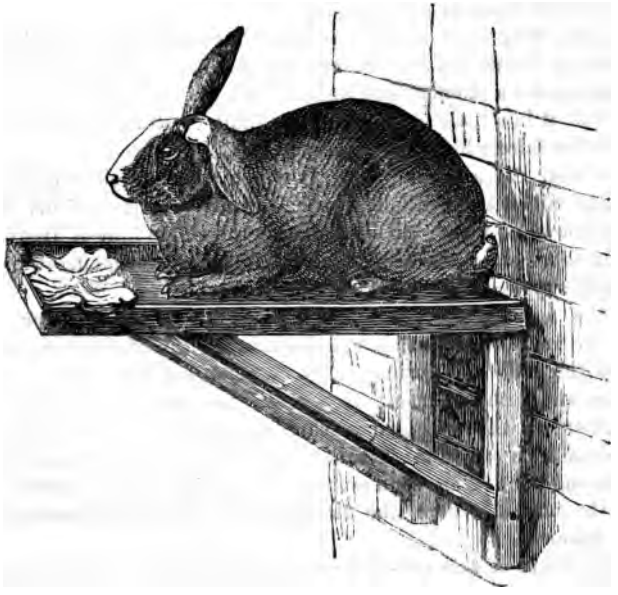
All this she saw in Perez during the few hours which she spent by his side; for the isolated child knew no disguise. And while he cherished with pious constancy the lily which a careless hand had dropped, thinking it in some way a token of her kind love, or an emblem of her half-realized beauty and grace, she laid among her jewels the torn, faded flower from the swamp, and felt that it was to her the choicest treasure of them all.

For as through her Perez looked up and saw dimly a heaven above, she through him looked down into numberless toiling hearts, and saw in each one the eager grasp of some good. And when she considered the mist-shrouded land through which they often travelled, and measured their narrow vision by her own fullness of knowledge, she knelt, with her hands folded over the blossom which was culled in doubt and perplexity, and her

calm, earnest prayer met poor Perez's half-uttered petition, and together they went up to Heaven. And, in the glory which shone from thence, she was the pure spirit of beauty which guided to an Infinite Beauty; and by her side, shambling, uncouth, half-witted Pepe stood transfigured in the radiance—the being whose trustful entreaty had shown her Heaven's wide open door.

TOM'S POCKET MONEY, AND HOW HE MADE IT.

TO THE REV. DR. PRIMROSE.



SIR,

I PAID another visit to my friend Tom Harding last Saturday afternoon, to see his rabbits, and how he managed to make money by them. I was very curious to learn the secret of his success, because I know a good many boys who have kept rabbits, but without doing any good with them, because they died or were stolen. And this was the result of my own experience.

As soon as Tom had welcomed me in his usual hearty manner, he said, "Well, Bob, what is it to be to-day, ducks or rabbits?" "Don't you remember," I replied, "that you promised to show me your rabbit warren, and I have come purposely to see it?" "Oh, yes, to be sure," said he "come along, and see my fur-coats."

Then he led the way out at the garden-wicket into a paddock, in the middle of which was a very pretty structure, which I could not at first make out the use of. It looked like the roof of a circular thatched cottage, supported on posts formed of the trunks of young birch trees; the apex of the roof was a dove-cote, and the roof itself was divided into compartments or chambers, in which pigeons made their nests and reared their young. The bottom of the roof was about ten feet from the ground, and this was the height of the tree-posts that supported it.

As I approached this novel structure, which was surrounded by a neat paling, about four feet high, I remarked to Bob what a very singular, pretty "what do you call it" that is!

"Do you think so?" replied Bob; "well, there's another surprise for you, old boy; so look out."

Well, sure enough, when I came up to the paling and looked over, there was a deep pit, twelve or fourteen feet down at the least, to which the thatched roof served as a kind of tent or umbrella, to keep the rain from falling in. Tom, taking a key from his pocket, unlocked a padlock and opened a little gate in the paling, and we went inside and stood on a narrow space between the paling and the edge of the pit, and looked down into it, and there I saw, I should think, at least a hundred grey rabbits, feeding and frolicking in a most delightful manner. I was perfectly amazed.

"That's my rabbit warren," said Tom, laughing; "what do you think of it?"

"Wonderful!" I exclaimed; "why you are a perfect genius, Tom. I should never have thought of such a contrivance as this."

"Perhaps not," replied Tom; "we cannot all think the same things, and I did not contrive all this myself; a hint from one and a hint from another, and so we improve upon our first ideas. Do you not think this plan is better than shutting the rogues up in hutches, and tea-chests, and other cages? Here they can follow out their natural inclinations and instincts. You see the soil is loose and sandy, and they burrow in it where they like. I give them plenty of fresh food, such as they like best, every day, and keep the place very clean, and I very seldom lose one; they are always in good health and in good condition of flesh and fat."

"What induced you to take to breeding rabbits in this fashion, Bob?" I enquired.

"I'll tell you the whole story," said he, "if you have time to listen to it. I say to you as I say to my rabbits, 'Lend me your ears.'"

"Go on, Bob," I said, "but don't preach."

"Last autumn I accompanied my father upon a tour in Belgium, where he went to examine into the state of agriculture in that country. In the course of our journey we came to the town of Termonde, in East Flanders. It was dark when we arrived at our hotel. I awoke early next morning, and went to the bedroom window to look out, and see what sort of a place it was.

"The window looked into the market-place, where I saw a sight that for a time puzzled me greatly. About a hundred poorly-clad men were standing in a double row, so as to form a lane between them, each holding an old sack before him, with a basket standing on the ground in front of each sack. Presently a real dog-cart drove up, that is, an open latticed cart, covered on the top, and drawn by six dogs.

"The owner of this cart stopped at the first man with a sack, put his hand into it, and drew out by the ears a fine rabbit, which he laid upon his left arm, and then blew into its fur. Apparently he was satisfied with his inspection, for, nodding his head to the man holding the sack, he popped the rabbit into his dog-cart, and then drew out another, which he treated in the same manner. He then stooped down and opened a basket which contained a lot of young rabbits. These he also put into his cart, basket and all, and handed some money to the man with the sack.

"Then he proceeded to the next man, and the same performance was gone through. I observed that he took only the men on the right, but he was followed by another man with a dog-cart, who dealt with the men with the sacks and baskets standing on the left of the lane they made.

"I quickly dressed myself and hastened down into the market-place, to observe the business more closely. Then I learned that this was a rabbit fair, and that these men with the dog-carts travelled about, the country from house to house, buying up rabbits, which they afterwards kill, skin, and ship from Ostend to London in such large quantities. In towns the rabbit-breeders assemble together as I have described. The fair at Termonde opens at six o'clock, and continues open about an hour."

"Do the dealers buy all the rabbits?"

"The dealers do not buy every rabbit offered for sale. When they blow into the fur and it comes off the skin, it is a sign that the rabbit is not in good health, and when in that condition the fur is always loose. The fur should be tight and the skin white; these are good signs. When the fur is loose and dull-looking and the skin clay-coloured, it shows that the rabbit has been badly fed and cared for.

"As you well know, Bob, Ostend rabbits attain to a very great size; they weigh usually from ten to sixteen pounds each, when six or eight months old, and I have seen some a year old weighing twenty and even six and twenty pounds; and this all comes from careful breeding and feeding, for the original stock was the same as our little grey rabbit. Many persons suppose that these monstrous rabbits are a particular breed, but father says that is an error. The Belgians are all very ardent amateurs of something, and having in certain districts devoted themselves o the rearing of rabbits, they have brought the art to the greatest possible perfection, being greatly stimulated by prize shows and good profits. In Hainhaut and the province of Namur they are passionate admirers of larks; in other provinces, of carrier pigeons, game cocks, and nightingales; but in East and West Flanders they affect rabbits. There they are thoroughly domesticated and the pride of the family. This is no exaggeration. They are petted and

shown to visitors, and cooked and served up on grand occasions. Medals are awarded to the breeders of the best specimens, and the fortunate winner hangs up his prize over the mantel-piece as a trophy. The prize rabbit rises immensely in value, £4 or £5, and even more, being frequently refused for it.

"In Belgium rabbits are not usually reared on a large scale by breeders, but as everybody keeps rabbits the total number produced for sale every year is enormously great. A hutch is made out of any kind of a box, and a thick litter placed in it, which is frequently changed. In summer the hutches are placed in an airy place; in winter they are put in stables or outhouses. The rabbits are fed upon brewer's grains, fresh cabbage-leaves, meadow grass, and potato-peelings cooked with bran. In winter, carrots, hay, clover, and dried potato-peelings form the ordinary nourishment. The rabbit is not a very dainty feeder."

"And do you really make money by breeding rabbits, Bob?" I asked "for very few persons do, as I am told."

"If I did not make money by them, I certainly would not keep them."

"But it is not everybody who can keep rabbits in the grand style you do, Bob; what are those people to do who have no meadow in which to dig a pit for the rabbits to burrow in?"

"If rabbits cannot be kept in a proper manner, so as to secure their healthy condition, they ought not to be kept at all. Father says, that the reason why rabbits and other animals kept in confinement so frequently become diseased and die, is because they are deprived of fresh air, and are not kept properly clean."

"I see you have got no fancy sorts; your stock looks all like wild rabbits."

"Yes, I give them the preference, because they are hardy, and their constitutions have not been injured by crossing and bad treatment."

"But how about the figures, Bob? show me your ledger."

"No occasion for that; one example is as good as a thousand; for example, a good doe will give me six or seven litters a year, of five or six young ones in each. I begin fattening these young ones when they are about five months old, and in two months they are fit for market, and worth a shilling a-piece at least, and more, in proportion to their weight. Thus, you see, each doe brings me in, upon an average, thirty shillings a year; and I am pretty sure the cost of keeping her and fattening her six litters is not more than ten shillings, so that, if I keep a hundred does, I make a pound a year by each, and that, of course, amounts to one hundred pounds.

"Prodigious!"

"This is supposing all goes well, and there are no losses from disease and other causes. I suppose I have been very lucky, for I never have lost many. But I am quite safe in putting down the profit on the hundred does at ten shillings each, or fifty pounds."

"I must certainly try again to keep rabbits, Tom; what would you advise me to do in setting about it?"

"Don't attempt it unless you can command a light, airy place, warm, dry, and well ventilated; 'pewer aer,' as our gardener says, is what all living things require in order to thrive.

"You will require a space from forty to fifty feet in length by twelve to sixteen feet in breadth to contain four and twenty lockers, two of which you will appropriate to bucks, and two others, double the size, to young rabbits from five to six weeks old. Give them plenty of room about it. I should contrive a gallery to run all round the lockers, into which they could come from out of their lockers into the air and sunshine.

"Your bucks should be five or six months old, and your does four or five. The does go with young from thirty to thirty-one days. When the young are six weeks old they may be taken away from the doe and put to feed by themselves.

"If you want your rabbits to fatten quickly, they must be kept quiet and allowed to take as little exercise as possible, and kept upon the most nourishing kind of food. They should be fed three times a-day, at stated hours, varying the food as much as possible, alternating dry food with green. The remains of the food given at one meal must be removed before fresh food is supplied, and the litter must be kept dry and frequently renewed, so as not to become putrid and generate disease.

"I will now show you," said Bob, "a contrivance I saw in Belgium for promoting the fattening of rabbits. Here you see the rabbit is placed, with his food, on a kind of shelf fixed to a wall, where he cannot run about, or even turn round, and he passes his days, few in number, in eating and growing fat.

"When I entered upon the rabbit manufacture," said Bob, "I thought over these things. First, the flesh and the skin are both marketable commodities. It is to the poor what the hare is to the rich, and quite as savoury, if properly cooked. A good cook can dress rabbits in a hundred different ways. If you want your rabbits to possess a good flavour you must not give them turnips or cabbages during the last week of their existence, but give them parsley, thyme, and other savoury herbs, with their ordinary food.

"The fur of the rabbit is used for a variety of purposes by hatters, furriers, toymakers, and others; and the skins, deprived of fur, are cut into slips, to make painters' size. Their excrements constitute a good manure."

"Thus you see, sir, I picked up something interesting and useful from my ingenious friend, Bob. Upon my next visit I am to be introduced to his pigeons and ducks.

"I remain, reverend sir, yours very respectfully,

"ROBERT."

THE GYMNASIUM.

TWO distinct yet harmonious branches of study claimed the early attention of the youth of ancient Greece. Education was comprised in the two words, Music and Gymnastics. Plato includes it all under these divisions: "That having reference to the body is gymnastics, but to the cultivation of the mind, music."

Grammar was sometimes distinguished from the other branches classed under the term Music, and comprehended, besides a knowledge of language, something of poetry, eloquence and history. Music embraced all the arts and sciences over which the Muses presided.

Grammar, Music, and Gymnastics then comprised the whole *curriculum* of study which was prescribed to the Athenian boy. There were not separate and distinct learned professors, or faculties, to so great an extent as in modern times. The compass of knowledge was far less defined, and the studies and attainments of the individual more miscellaneous. Some of the arts rose to an unparalleled perfection. Architecture and sculpture attained an excellence which no subsequent civilization has reached. But the practical application of the sciences to daily use was almost entirely neglected; and inventions and mechanics languished until the far later uprising of the Saxon mind.

Yet the whole system of education among the Greeks was peculiarly cultivated for the development of the powers of the mind and of the body in common. And it is from this point of view that we wish to consider it, and to show the nature and pre-eminence of gymnastics in their times as compared with our own.

Doubtless, Grecian art owed its superiority to the gymnasium. Living models of manliness, grace, and beauty, were daily before the artist's eye. The *stadium* furnished its fleet runners, nimble as the wing-footed Mercury —fit types for his light and airy conceptions; while the arena of the athletes offered marvellous opportunities for the study of muscle and posture, to show its results in the burly limbs of Hercules or the starting throws of Laocoön. Many of the most life-like groups of marble which remain to us from that time are but copies of the living statues who wrestled or threw the quoit in the public gymnasium.

It is worthy of remark, in corroboration of this view, that the department of the fine arts which depended on outline surpassed that which derived its power from colouring and perspective. The sculptors far excelled the painters. The statue was the natural result of the imitative faculty surveying the nude human figure in every posture of activity or repose. Pictures come later, from more educated senses, and from minds which had first learned outward nature through the medium of the simpler arts. The ancient gymnasium, apart from its baths and philosophic groves, was far from being, as with us, a mere appendage of the school. Modern instructors advertise, that, in addition to teachers of every tongue and art,

"a gymnasium is attached" to their educational institutions. In old times, the gymnasium was the school—the public games and festivals its "annual exhibitions."

The word *gymnasium* has reference in its derivation to the nude or semi-nude condition of those who exercised there. But, in their proper classical interpretation, the public gymnasia were, to a great extent, places set apart for physical education and training. Gymnastics, indeed, in the broadest sense of the word, have been cultivated in all ages. The spontaneous exercises and mimic contests of the boys of all countries, the friendly emulation of robust youth in trials of speed and strength, and the discipline and training of the military recruit, have in them much of the true gymnastic element. In Attica and Ionia they were first adapted to their noblest ends.

The hardy Spartans, who valued most the qualities of bravery, endurance and self-denial, used the gymnasium only as schools of training for the more sanguinary contests of war. So, too, the martial Roman, despised those who practised gymnastics with any other object than as fitting them to be better soldiers. Yet, to so great a degree were these exercises cultivated, even by the latter nation, that the Roman private of the line did his fifteen or twenty miles' daily march under a weight of camp equipage and weapons which would have foundered some of the best-drilled modern warriors, and concluded his day's labours by digging the trenches of his camp at night, The ponderous *pilum*, and the heavy straight sword of the infantry were exchanged in the barrack-yard for drill weapons of twice their weight; and so perfectly were the detail and regularity of actual service carried out in their daily discipline, that as an ancient writer has remarked, their sham-fights and reviews differed only in bloodshed from real battles. The soldier of the early Republic was hence taught gymnastics only as a means of increasing his efficiency; the lax prætorian and the corrupt populace of the empire turned gladly from the gymnasium to the circus and the amphitheatre.

In the same manner were those exercises regarded by the Dorians and the people of some other of the Grecian States. The inhabitants of Attica and of Ionia, on opposite shores of the Ægean, as more cultivated races, viewed them in a more correct physiological light. But it was at Athens that the gymnasium was held in highest repute. We read that Solon, the Athenian lawgiver, first established particular regulations for its government. Attic legends, however, gratefully refer the earliest rules of the gymnasium to Theseus, as to one of the mightiest of the mythical heroes, the emulator of Hercules, slayer of the Minotaur, and conqueror of the Amazons. Hermes was the presiding deity, which may appear strange to us, as he was as noted for an unworthy cunning as for his dexterity. Generous emulation and magnanimity were regarded as the noblest qualities called forth in gymnastic exercises; and Mercury seems a fitter tutelar divinity of the wary boxer and of the race-course than of the whole gymnasium.

Probably no Greek town of any importance was destitute of one of these schools of exercise. Athens boasted three public gymnasia—the Cynosarges, the Lyceum, and the Academy. These were the daily resort of young and old alike, though certain penal laws forbade them from exercising together at the same hour.

The school-boy frequented them as a part of his daily task; the young man of leisure, as an agreeable lounging-place; the scholar, to listen to the master in philosophy; the sedentary, for their customary *constitutional* on the foot-course; and the invalid and the aged, to court the return of health, or to retain somewhat of the vigour of their earlier years. The Athenians wisely held that there could be no health of the mind, unless the body were cared for, and viewed exercise also as a powerful remedial agent in disease. Such a variety of useful purposes were thus subserved by the gymnasia, that it will be proper to look briefly at their internal arrangements. We shall follow the description which has been left us by Vitruvius.

The ancient gymnasium was generally situated in the suburbs, and was often as large as a *stadium* (six hundred and twenty-five feet) square. Its principal entrance faced the east. A quadrangular inclosure comprehended two principal courts, divided by a party wall. The eastern court was called the *peristylium*, from the rows of columns which surrounded it; the western also was bordered by porticos, but for it we have no distinct name. The peristyle must have been from one to two hundred feet square. It was sometimes termed the *palæstra*, though this name was afterwards restricted to the training-school of the athletes proper, who made gymnastics the business of their lives. It was also styled the *spoeristerinm*, or ball-ground, to which the nearest approach in modern times is the tennis-court. The chief western inclosure was planted with plane-trees in regular order, with walls between them, and seats of the so-called *signine* work, and was about one-half larger than the peristyle. The space between the columns of the latter and the outer walls, allowed sufficient room for rows of chambers, halls, and corridors, whose uses we will next designate.

The first room on the right, as one entered the east gate, was the *loutron*, or room for washing, distinct from the regular baths. Next, in the north-east corner, was the *consisterium*, where sand was kept for sprinkling the wrestlers after they had been anointed for the struggle. West of this lay the *coryceum*, a hall for exercising with a sack of sand suspended from the roof. It seems plausible to suppose that this exercise corresponded with that more recently practised by Mr. Thomas Hyer, previously to his fight with Yankee Sullivan. A bag of sand, equal in weight to his adversary, was daily pommelled by the champion of America until he could make it swing and recoil satisfactorily.

Adjoining this room were two small apartments called the *ephebeum* and the *elæthesium* respectively. The former was devoted to preparatory exercises, probably by way of warming up for severer efforts; the latter was used for anointing, and was connected with the baths, which followed next in order. These were the *frigidarium*, the *calidarium*, the *sudatorium*,

and the *tepidarium*, for the cold, the hot, the sweating or vapour, and the warm baths. They did not possess the magnitude and ornament of the Roman *thermæ*. They were used in connection with and after exercising, and were enough for all practical purposes. Bathing was not then the business of hours every day, as it was later in the Roman Empire, when the luxurious subjects of Caracalla indulged several times in the twenty-four hours in such a variety of ablutions as would have satisfied a Sandwich Islander.

We have now arrived at a point nearly opposite our entrance at the east, and, continuing round the south-west, south, and south-east sides of the peristyle, find a large number of consecutive chambers devoted mainly to the philosophers, as lecture-rooms and auditories for their classes and followers. On the north side of the peristyle is a double portico, containing the *exedræ*, or seats of the sophists, where each most cunning rhetorician delivered his opinions *ex cathedrâ*, and lay in wait for any passer whom he could ensnare into an argument. The groves of the great western court were probably used by the lounger, the contemplative, and the studious, if we may judge by numerous seats and benches, at convenient intervals. On the south side of these was again a double portico; and on the north, outside the pillars, the *xystus*, or covered porch, where the athletes exercised in winter and in bad weather. The arena was twelve feet wide, and sunk a foot and a half below a marginal path of ten feet, where spectators could walk. On the north and south sides of the whole building were wings of less width, extending nearly its entire length. That on the north contained the *stadium*, or foot-raee course, which was, however, sometimes disconnected from the gymnasium. The south wing was of like dimensions, and adorned with plane-trees and walks, forming a more private retreat.

It will be readily conceived that this vast area was not devoted exclusively to physical exercises. Logic, rhetoric, and metaphysics claimed their place in this common focus of city's life, and were the delight of the subtle Greeks. The Socratic reasoning and the syllogisms of Aristotle met here on common ground. The Stoics, with their stern fatalism, derived their name from the *stoæ*, or porticos; the Peripatetics imparted their ambulatory instructions under the plane-trees of the Lyceum; and Plato reasoned in the Academy, which he held with his school, and into which no ungeometrical mind was to enter. And though some dog of a cynic might despise the union of the ornamental with the useful, and claim austerity as the rule of life, yet to the great body of the social Greek people the gymnasium offered all those attractions which *boulevards*, *cafés*, and *jardins-chantants* do now to the Gallic nation. There is more than one point of resemblance between the two countries; but while the Athenian had the same mercurial qualities, which fitted him for out-door life, he had even a less comfortable domestic establishment to retain him at home than the modern Parisian.

We must turn, however, rather to the physical view of the gymnasium. All the sports of the gymnasia were either games or special exercises for

the contests of the public festivals. And here a distinction must be made between amateur and professional gymnasts. The former were styled *agonistæ*, and exercised in the public gymnasium; the latter *athletæ*, and were trained fighters, whose school was the *palæstra*. At first frequenting the same, they afterwards became divided between two institutions. Some of the harsher sports of the prize-fighters were not thought genteel for the well-nurtured youths to indulge in. Among the simpler games were the ball, played in various ways, and the top, which was as popular with juveniles then as now. The sport called *skaperda* can be seen in any gymnasium of to-day, and consisted in two boys drawing each other up and down by the ends of a rope passing over a pulley. Familiar still is also a game of dexterity played with five stones thrown from the upper part of the hand and caught in the palm. Various other gentle exercises might be mentioned.

The training for the public games was comprised in the *pentathlon*, or five exercises, which were running, leaping, throwing the discus, wrestling, and boxing. The first four were practised also by amateurs, and by most persons who frequented the gymnasium for health.

The race, ran upon the foot-race course, was between fixed boundaries, about a stadium apart. The distances ran were from one to twenty *stadia*, or from one-eighth of a mile to two and a half miles, and sometimes more. This exercise was much followed. Horses were sometimes introduced, but then the hippodrome was the course. They ran without riders, as at the Roman carnival, or with chariots. Horse-racing was most popular in the Roman circus, whose ruins will show its massiveness and great size.

Leaping was performed also within fixed limits, generally with metallic weights in the hands, but sometimes attached to the head or shoulders.

The quoit, or *discus*, was made of stone or metal, of a circular form, and thrown by means of a thong passing through the centre. It was three inches thick and ten or twelve in diameter. He who threw farthest won. It is a modern game also, and is imitated in the country custom of pitching the bar.

Wrestling has been a favourite contest in all times. Milo of Crotona was the prince of wrestlers. He who threw his adversary three times conquered. The wrestlers were naked, anointed, and covered with sand, that they might take firm hold. Striking was not allowed. Elegance was studied in the attack, as well as force. There was a distinction between upright and prostrate wrestling. In the former the one thrown was allowed to get up; in the latter the struggle was continued on the ground. The vanquished held up his finger when he acknowledged himself beaten.

(*To be continued.*)

THE WONDERS OF BOTANY. DO PLANTS THINK?

THE earth is full of wonders. What we call the "Book of Nature" comprises three great chapters, describing the mineral, vegetable, and animal kingdoms. We cannot say which is the most interesting and profitable to study, for each has its own peculiar attractions and charms, according to the taste of the student, and each brings its own peculiar reward to those who study it.

To most persons the animal creation possesses the greatest attraction, for, beside life and beauty, there is the additional charm of motion and activity. Wonderful is the structure of the birds that fly, the animals that go on all fours, the fish that swims, and every winged and creeping thing. Life is too short to complete the study of the habits and instincts of the tenants of the animal world. The more we learn the more we are lost in admiration, and the more we seek to know.

We think the animal the most wonderful of created things until we study the structure and habits of plants, and then we find that these are no less wonderful, and perhaps even more so. There is a mystery in the life of a plant which science has not revealed to us. Like the animal, the plant has *life:* it draws its nourishment from the earth, in which it seems firmly fixed, while the animal, obedient to its instincts, is free to roam in quest of its nutriment. But instances are recorded in which the plant has removed itself from a spot upon which it could not thrive to another where it could obtain the nutriment requisite for its growth.

The first care of living things is to obtain the nutriment indispensably necessary to sustain their existence. Every animal has its chosen food, upon which, and upon no other, it can thrive: the plant as well as the animal is able to select its food; and if the soil in which it grows does not contain the identical ingredients the plant prefers, it languishes and dies. The quality of this food is discovered by examining the ashes of a portion of the plant when burned, for, beside carbon or charcoal, the solid portion of plants consists of certain mineral salts. And these very salts are found in the ashes of the flesh of animals feeding on these plants.

The nature of the food required by certain animals demands that they should possess the power of moving from place to place, for the lamb will not voluntarily jump into the wolf's mouth; and though the ox and the sheep may devour every blade of grass in the pasture, yet there are other fields to which they can repair and be filled. Not so the plant; for where the seed falls, there it must lie, and gather its nutriment and grow so long as it lives, rooted to one spot; and if the supply of nutriment fails, it languishes and dies.

The efforts a plant will make to obtain a sufficient supply of nutriment are truly marvellous. The energy it displays under such circumstances is so great that its roots will penetrate a rock in the direction in which an abundant nutriment may be found. The great chesnut trees growing on

Mount Etna know how to find the bed of the springs, in spite of the thickness of the rocks and lava above them. Among the ruins of New Abbey, in the county of Galloway, stands a maple-tree, which formerly grew on one of the walls. Finding its supply of nourishment deficient, it threw out a long root, which ran down the wall and fixed itself solidly in the earth beneath. When this root had become strong, the maple, in order to let itself down from the barren wall, gradually detached its other roots from the wall where it had hitherto grown, and separated itself entirely from it, to live henceforth in the soil to which it had transported itself by its own unaided efforts.

Murray, the botanist, relates that a gooseberry bush growing in a place where it could not thrive, sent out one of its branches towards a more fertile piece of land. This branch took root there, and became transformed into a bush, while the original stem completely disappeared from the soil where it first grew. Thus, this stem, after reaching the good soil towards which it was sent, permanently established itself there, and ceased to demand its nourishment of the barren soil it abandoned.

It has been observed that on the borders of Lake Como, near the *Villa Pliniana*, some trees on the summit of the rocks sent down roots towards the good soil below, penetrated it deeply, and changed themselves into new trunks, while the old ones withered up completely. This is another striking case of self-transplantation.

We may mention another instance which occurred under our own observation. At the Island of St. Thomas, in the West Indies, upon a rock four or five feet in height, a pomegranate tree sprung up. It had grown some height near the wall of a cistern built on the rock, and grown very rapidly as if it were anxious to raise its head above the wall which intercepted the sun's rays. Upon returning to the place after some years' absence, we saw that it had grown up tall and thin like a poplar, and in aspect very unlike a pomegranate. Its roots entwined the entire rock, penetrating the smallest crevice. It had a drooping aspect, betraying a state of suffering and languor. It seemed about to die, when suddenly it sent out a strong root down the side of the rock, which, having reached the fertile soil, soon penetrated it, forcing a passage through the small plants that grew there. This new root acquired great vigour, while the old ones which clung to the rock gradually detached themselves from it, and began to wither, the tree visibly changed its point of support, and finally it entirely abandoned the rock where it was born, to prosper in the soil towards which it had directed its roots, and to which it had entirely removed itself.

In considering all the facts that connect themselves with the nutrition of plants, when we see them show so much energy and perseverance in the search after nutriment, abandoning a barren soil to transfer themselves to one more fertile, we are almost tempted to believe that these efforts are animated acts; and that the individual from whom they emanate may be conscious of them, the same as we believe ourselves fully authorized to recognise an animated being in the beast, seeing that it acts in an analogous manner, though in quite another sphere.

It is not only in the circumstances which accompany the nutrition of vegetables that we discover traces of an animated force. The plant seems, like other organized beings, to possess manifold tendencies, divers inclinations, which govern and direct it during the whole course of its existence.

Of all creatures that respire upon the earth, our common mother, none seek light with so much avidity as the plant. It thrives in it, it delights in it.

We have already indicated the faculty that plants possess of directing themselves towards the light, when explaining the rapid growth of a pomegranate, by the tendency which governed it to elevate itself above the wall which intercepted the rays of the sun.

When an oak growing in a forest is surrounded by other large trees, it exhibits a constant tendency to grow straight up in quest of air and light. It sends out very few branches in a lateral direction. These isolated branches soon wither, and at length fall off. The oak having attained the object of its persevering efforts, and at last finds its summit waving freely in the light, a feeling of repose succeeds to that of incessant activity. Soon afterwards it commences to develop numerous lateral branches, so as to form its crown. But at the time of entering upon this new phase of activity it has already accomplished one half of its existence. The incessant efforts it has made to reach the light from the sky exhausted all the vigour of its youth, and the new effort by which it desired to show its power will not have the success it promised itself. After becoming wholly developed, it will present the aspect of a tall, large, and even strong being; nevertheless, the defect of proportion between its trunk and its crown, will essentially destroy its beauty.

A botanist observed the following fact:—A stachid (*Stachys recta*) sprung up near the borders of a forest, amid a very thick hedge. It had no sooner attained a height of a few inches than it stopped its vertical development, and bending its stem, proceeded in a horizontal direction towards a little opening through which a stronger light penetrated the hedge. The stachid continued to grow thus horizontally towards the most lighted part, until it reached it. From that moment its stem grew vertically as at first.

We have seen potatoes growing in a cellar send out shoots five and twenty feet above the ground, to reach the only aperture through which light penetrated into the cellar.

An experiment frequently made evidently proves that plants in acting thus only obey an instinct or tendency which leads them towards the light, and that the want of air forms no part of it. If different plants which have germinated in a cellar are placed between two windows, one of which, situated in a dark corner, allows the atmosphere to penetrate freely, while the other, being glazed, gives access to light only, we shall see all the plants grow towards the lighted but closed window.

It is worthy of notice, that plants which grow thus in cellars proceed in a straight line towards the light; but as they cannot support a gigantic stalk, which acquires seven or eight times its usual length, they let it trail on the ground until it reaches that part of the wall in which the window is situated, and against which it henceforth remains.

We cannot repress a feeling of surprise at seeing beings considered in all times, right or wrong, as absolutely insensible, not only betray great impressionability under the action of light, but also hasten to meet it with such energy that if they cannot otherwise reach it they spontaneously modify their habitual mode of growing to creep and climb towards it.

Let us also relate the ingenious experiment made by Mustel. This ingenious observer placed before a pot of jessamine a little board, in which he had cut several apertures two inches in diameter, at a distance of six inches from each other. The jessamine changed the direction of its stem, and travelled towards the light, by passing through the nearest aperture. Mustel immediately placed the board and the jessamine in the opposite direction, so that the stem which had passed through the first aperture found itself in the dark; but the plant again presented itself to the light, by passing through the second aperture. After repeating the experiment several times Mustel had the satisfaction of seeing the stem traverse all the apertures, and pass both sides of the board in zig-zag. This fact reminds us of the instinct of the imprisoned bird to escape through the first opening presented to it.

The following fact, while it shows how much aspiration towards the light prevails in plants, seems also an example of the energy of which these beings are capable, when they attempt to escape from a position unfavourable to their existence.

A professor of Leipzig, well known to botanists, was informed that a new kind of cryptogam had been discovered in the deep mines of Mansfeld. Its scaly stalk had attained to the height of a hundred and twenty feet, without, however, having reached the opening to the mine. What was this pretended cryptogam? A clandestine (*Lathræa squamaria*) plant, which usually grows to the height of a few inches only. Thrown accidentally into this great depth, it proceeded in search of what it most needde —light. The only means of reaching it was by growing—always growing: this is what the plant did, and at the moment it was discovered struggling towards the light, it had already exceeded by a hundred-fold the height it attains when growing in full daylight on the surface of the earth.

When the caterpillar tends to pass from its state of caterpillar to a higher stage of existence, instinct informs it that it must first concentrate all its efforts in a single task—that of spinning a cocoon. We believe that this instinct is a power as mysterious perhaps as that developed in the *clandestine*, which, to attain the light, and find a better existence, first concentrated all its efforts in a single act—that of growing. It is to be remarked that this plant began to seek the light before the latter had fallen upon it; so that the tendency that carried it towards the light was spontaneously developed in it, without the least solar ray having penetrated the great depth where it grew. This circumstance, which shows that the plant did not act under the stimulus of an external agent, leads us to discover in the phenomenon now under consideration the characteristic sign of every voluntary act—spontaneity.

THE TELEGRAPH AND THE TREE.

THERE is an old, old tree a-dozing by my door;
Not a leaf upon it grew for four long years and more;
Nor came there ever bird, or butterfly, or bee,
To revel in the branches of that old, old tree.

Among its topmost twigs, that so closely interlace,
Run the wire-cords that harness the steeds of time and space—
The telegraphic runners that ceaselessly convey,
From north and south and east and west, the tidings of the day.

This morn o'er the old tree I saw a change had come:
The bursting forth of green leaves; the insect's joyful hum;
And the warbling of the spring birds that gladness brought again
To the boughs that long were moaning in the wind and the rain.

What can thus have stirred the heart of the dry old tree?
The little birds that sing there now have whispered it to me:
'Twas the singing of the wires with such glorious news alive,
In the dawning of the glad days of April, 'Sixty-five.

THE SONG OF THE BUGLE.

OUT of my brazen throat each morn
I sound the call at the break of day,
And my hollow notes on the wind are borne
High over the hills and far away:
But first they wind through the drowsy camp,
Then on through the valley and over the hills,
By field and river and wood they go
Till the mellow music the wide air fills.

The trooper starts from his bed on the ground
Where all night long in sleep he lay;
The war-horse neighs when he hears the sound
Float on through the camp at the dawn of day;
And the trooper buckles against his side
The trusty blade he has worn so long;
And away over river and field and wood
Wind the mellow notes of my morning song.

The wild bird hears it within his nest
High up in the tops of the tall pine-trees,
As he pours from out of his swelling breast
His own sweet song on the wandering breeze—
Then I call aloud from my hollow lungs,
"To horse! to horse!" and the sabres clang,
And the wide woods echo as if through their breath
A thousand clattering anvils rang.

Then *forward*, and over the rugged way
Sound the clang of the sabres, the horses' loud tramp;
The sun looks out from the halls of day,
But views no longer a waking camp;
And out of my brazen throat I fling
A mellow greeting so loud and clear,
That it rings through the misty vales and wakes
The slumbering echoes afar and near.

But louder than all are the notes I sound
When the order is given to charge the foe;
Then the war-horse spurns with his hoof the ground,
And many a gallant trooper lies low
In the fiery onset's terrible shock,
When the dumb earth seems to hold its breath,
And eyes that kindled with sudden fire
Are fixed in the glassy stare of death.

But a louder blast shall be heard one day
Than any which sounds from my hollow throat,
High over the hills and far away
Through the realms of space the song shall float;
But before the angel shall sound that call,
War and famine and hate shall cease,
And the earth with her fruits and smiling flowers
Shall bloom through a thousand years of peace.

CORRESPONDENCE.

LETTERS BETWEEN HARRY IN TOWN AND BOB IN THE COUNTRY.

Oaklands Hall.

Dear Cousin Harry,—After all, I do not think I would exchange with you. You may stick to your studies, and I dare say you will some day become Lord-Chancellor or Prime Minister. I shall cultivate rustic occupations, pursuits, and recreations, and probably remain a "rustic bumpkin" in your estimation all my life. I don't mean to "vegetate," as uncle says; but instead of being a mere man farming, be a "man on a farm." "That," aunt says, "is uncle's high jinks;" but what it all means I leave you to understand, for I cannot make it out at all, although I dare say there is something in it. Uncle is always talking about the nobility of farming. He says it is man's noblest occupation, if he only has the sense to turn his opportunity to account. So I shall study to be a man on the farm; and I dare say and hope I shall bring no disgrace on the family.

Let me tell you, Cousin Harry, that we are having a capital time of it here; for, as you very well know, Christmas is coming, and great is the slaughter among the turkeys, geese, and poultry. The pigs and sheep, too, come in for their share in the massacre, and the very air reeks with blood, as some poet—I forget which—says.

Of course a great many of these innocents will find their way to London, and make the hearts of your Cockney friends rejoice.

But better things are going on than this annual slaughter. The country, all through winter, is beautiful. Oh, the long walks and rides I take! And I shoulder my gun on frosty days, and start the hares and partridges and other small deer; and always contrive to carry my game-bag home quite full. Fishing is cold work at this season, so I shall postpone my attacks on the finny brood until next spring.

I have great pleasure and amusement in assisting uncle in getting up the old-fashioned Christmas festivities. We trained a band of waits, both to sing and play; and one night they came with their music under my window, and when I first woke I did uot know where I was; but thought I heard

'The herald angels singing."

We are to have the yule-log, the wassail-bowl, and the mummers, and the Lord of Misrule, which character uncle thinks will be best fitted by myself. Whether he is in fun or not I do not yet know, but I strongly suspect he means to insinuate that I am an unruly character, which, as you well know, Cousin Harry, is quite a mistake. However, we shall have rare doings, no

doubt, and I shall send you a full and particular account.

I have taken every opportunity of learning how to make butter and cheese, and I suppose brewing and baking will follow "in due course," as uncle says. I mean, like you, to learn everything that will make me useful "in that station of life to which it shall please God to call me," as the Catechism says.

Do not suppose, Cousin Harry, that we have got no books to read here: there's quite a lot in a lumber-room uncle calls his "Library." I spent a wet morning there the other day, and turned up Bunyan's "Pilgrim's Progress," Froissart's "Chronicles," Cook's "Voyages," "Don Quixote," a capital lot of old ballads and song-books, Annual Registers, "Old Gentlemen's Magazines," Chapman's "Homer," Mendez Pinto's "Travels," and ever so many more. I took a dip into the whole lot, reading a few pages in one, and a few pages in another, just to see which I should like best; and I like them—all best. I am afraid, though, that I shall not find much time for reading. In the evenings uncle makes me help him with his account-books, and I add up tremendous long columns of pounds, shillings, and pence, and never make any mistakes, except now and then. Some evenings I have to play chess with uncle; at others some neighbours come in for a gossip, and they are terribly prosy: their talk is of the weather, the rinderpest, the price of mutton and wheat, and when they mean to plough that ten-acres field, and the cows "calving," and the mare "foaling," and the sows "littering," and the ewes "dropping," and the hens "laying," and—but there's enough of that stuff.

I have not forgotten any of the good things left behind in London, although I do not crave for them. London has its enjoyments, I know very well, as the country has; and as we cannot have both at once, I, for one, mean to be content with whatever falls to my lot.

I hope, Harry, you will be able to run down and see us at Christmas, and eat your Christmas dinner with us: it will do you a world of good, old chap, as Aunt Lizzie says. Oh my, what a good aunt *she* is. I have tasted her elderberry wine, and it is capital. She knits such warm stockings, too, and makes delicious mince pies. I never saw any woman half so clever as Aunt Lizzie.

If you don't come down, Harry, be sure and send me all the news.

From your loving Cousin,

BOB.

Berkeley-square.

DEAR BOB,—I really do not think that I shall be able to run down and see you this Christmas, for there's a whole troop of American cousins just arrived in the "Scotia" steamer, who have come purposely to see how we keep Christmas in Old England. The best thing for them, though not for your uncle, would be to bring them all down to Oaklands Hall, to share your hospitalities and festivities; but of course I cannot take such a liberty uninvited. Not that I doubt uncle's capacity for hospitality, but I know he would not like it to be extorted from him "willy nilly."

So I must make the best of my chance, and show our Transatlantic friends all the "lions" I can. But do what I can, I expect I shall not be able to show them the very things they have "come for to see." Had they come sooner, I might have obtained them invitations from some of our country friends who keep up Christmas in good old English style; but there is not even time to think of it, let alone think about it.

Won't you miss the patomimes this year, Cousin Bob?—those "dear delights" which you, in previous years, ever since your were breeched, have taken so much delight in. If we may believe the promises of the play-bills, they are to be more wonderful than the wonderfullest. Your esteemed friend, Aladdin, the lamp-merchant, will, I think, become mine also; and if I can

I shall take a trip in his flying palace. You once thought you would like to be a harlequin. Clever as you are, Bob, you must eat another pound or two of pudding before you can undertake that important character. Now I come to think of it, this Mr. Harlequin appears to do all the work, when I really think he does little or nothing except caper about, slapping things with that magic wand of his. It is true, his jumps are bold and amusing, but is that all? As for Miss Columbine, she ought always to be pretty and dance well; but I advise you never to look at one through an opera-glass,—the "illusion vanishes," as the poet says. You may venture, however, to look at one through the *wrong end* of an opera-glass, for in that case beauty looks more beautiful.

At the Crystal Palace there is an Italian performer who beats Blondin. I can't begin to describe his wonderful feats; it would take a whole letter, and a picture besides. The Polytechnic Institution is always interesting, and I expect a batch of novelties is in store for Christmas visitors. Our winter amusements in London are, of course, all within doors, and open mostly of a evening. They are chiefly theatres and places where music is performed. Only entertainments of that class seem to find much support from the public. Instructive recreations, like the Panopticon and the Adelaide Gallery, have not been successful, because people, preferring to be amused rather than instructed, did not frequent them in large numbers. Now and then we have readers of poetry, who get pretty good audiences to listen to their recital of "The Jackdaw of Rheims," "The Dead Piper of Hamelin," "The March to Moscow," and such things of the kind that you wot of. I cannot say that I have found the reciting so good as I expected. In fact, I have been greatly disappointed. The orators are better than the reciters, and I have come to the conclusion that a fellow may start in life with no other capital than a good voice, a good delivery, and a good memory, and get along as well as any of us.

Happy new year to you, Cousin Bob.

Yours faithfully,

HARRY.

TO THE REV. DR. PRIMROSE.

Kennington Park Road, S.

REV. AND DEAR SIR,—I have just bought the first number of your new magazine, and there is one thing in it which pleased me considerably, and that is, your system of Examination Papers.

I see the first one is on Natural Science; but I suppose that you will sometimes give questions on Biography, History, &c.

Allow me to thank your correspondent R. S. for his letter in your first number. He is quite right. We know that we are boys, and are not ashamed to be called so; but at the same time we shall not always be boys, and, therefore, we want something that will be useful when we grow up, as well as something to amuse us now.

I also wish to thank you for putting your correspondent's letter in your book, and I am sure all your subscribers will do so as well, if they see that you always do. It is a good idea to do so, for it makes confidence between subscribers and the Editor.

I take in almost every book for boys that is published, and I find that there is one thing which makes a magazine very popular, and that is the system of giving prizes to subscribers for essays, &c. I want, my dear sir, to ask you a few questions, if you will kindly answer them. They are—

1. Will you vary the subject of your Examination Papers?

[*Answer.*—The subjects will be constantly varied, until the whole series

for which candidates for offices in the civil service must prepare themselves for examination is gone through.]

2. Will you give prizes for the said Examination Papers or Essays?

[*A.*—We shall give prizes, but the plan will require much thought and care, and be governed by the wishes of the majority of our correspondents.]

3. Do you always intend printing the letters sent to you?

[*A.*—We shall print all letters that are likely to prove interesting to our readers.]

I remain, reverend and dear sir, your obedient servant, A. J.

Richmond, S.W., Dec. 20.

Rev. Sir.—I have been to Mr. Twining's Museum at Twickenham, and was so greatly interested and instructed, that I thought I could not do better than communicate to you how great a pleasure I derived from the visit, for the benefit of your readers. I may say that there is enough material there to occupy many hours in examination, and of useful things, such as any boy may understand. It is not possible for me to do justice to the collection, except by detailed description, which task, unless previously performed by some one else better qualified, I propose to perform for your Boy's Wonder Book, if such proposition meets with your approval, and remain, Rev. Sir,

Yours obediently,
D. W.

[*Ans.*—We shall be pleased to receive the proffered communication.]

EXAMINATION PAPERS.

NATURAL SCIENCE.

1. Explain the principle of the mechanical power known as the wheel and axle. How is the principle practically employed for obtaining large mechanical advantage?
2. Illustrate by reference to the inclined plane and the screw the saying, "What is gained in power is lost in time."
3. What are the requisites of a good balance? Explain popularly the means practically employed for securing them.
4. Enunciate the first and second laws of motion, and state some considerations which suggest their truth. How is their truth finally established?
5. Explain the nature of impact between two elastic bodies. If one billiard ball moving at the rate of 4 feet per second overtakes another similar ball moving at the rate of 1 foot per second, determine their motions after impact, their elasticity being $\frac{1}{2}$.
6. Describe and explain the principle of Bramah's press, and for any given machine, calculate the mechanical advantage.
7. Explain by a figure or otherwise how the length of the day at a place varies, and how it is that the sun does not always rise and set at the same points of the horizon.

CAMBRIDGE EXAMINATIONS.

The total number of boys who entered for the local examinations in December was 1,217, a large increase over the number of last year, when there were 845. There are 986 juniors and 231 seniors this year, against 665 and 179 respectively last year. To these must be added 51 junior and 77 senior girls, making a total of 1,345, and by far the largest number of students ever examined at one time by either University. The following numbers show the extension of these examinations since they were instituted in 1858:—In the first

year 1,150 were examined at Oxford, 370 at Cambridge; in the third year, 864 at Oxford, 363 at Cambridge; in the sixth year 1,030 at Oxford, 629 at Cambridge; in the eighth year (1865), 1,220 at Oxford, 1,217 (boys) at Cambridge. The boys are examined by this University at twenty-four centres against eight in the first year. The girls who are to be admitted for the first time this year are to be examined at six places, — viz., Brighton, Bristol, Cambridge, London, Manchester, and Sheffield.

TO CORRESPONDENTS.

BURNHAM, W.—In forming a library the first step is to provide good books of reference, such as Cyclopædias and Dictionaries. Of Cyclopædias you may obtain them of various sizes and prices, from "Chambers's," published in three-halfpenny numbers weekly, to Mr. Chas. Knight's "English Cyclopædia," which costs eight guineas. and the "Encyclopædia Britannica," which costs £25. Then there are Cyclopædias and Dictionaries of special branches of knowledge, such as Ure and Watts's "Dictionary of Chemistry," Brande's "Dictionary of Science," Muspratt's "Dictionary of Chemistry," Smith's "Classical Dictionaries," a good Biographical Dictionary, and a Gazetteer; Baird's "Dictionary of Natural History." The next step is to furnish the library with the works of the best English classics, the works of Shakespeare, and our other poets. Then with the Histories of General Literature and Histories of the Literature of particular countries and periods, such as Hallam's "History of the Literature of the Middle Ages," and Prescott's "History of Spanish Literature." Then you will add the best elementary treatises on the different branches of science, such as Lyell's "Elements of Geology," Miller's "Chemistry," Lindley's "Botany," Dunn's "Mineralogy," Herschell's "Astronomy;" and summaries, such as Humboldt's "Cosmos," Mrs. Somerville's "Physical Geography," and "Connexion of the Physical Sciences." Then you will add some good collections of Voyages and Travels, such as Cook's "Voyages," "Travels in Africa," Voyages to the Polar Regions, and Travels in other countries, as required. With these, or part of them, as a foundation, you can go on adding as opportunities for making favourable purchases present themselves. A well-selected library is very rarely met with. Books seem to be generally gathered together without purpose or method; and for practical use, those most wanted on an emergency to solve any question of fact, are generally absent.

We shall be pleased to furnish you with any further information you may require on this important matter. A good library need not necessarily be a large or a costly one. Avoid buying such books as may be borrowed,—books which, when once read, are seldom again in request. Let books of reference be your first care.

P. W.—Such a practice is very frivolous and unprofitable. It is incumbent now upon every boy who wishes to advance in life to store his mind with sound knowledge, such as biographies, natural history, physical and chemical science, geology, and mineralogy. These subjects are full of interest, and quite as entertaining as the pastimes you now desire to cultivate. You cannot do better than begin with reading "Philosophy in Sport made Science in Earnest," by Dr. Paris; and the "Elements of Natural Philosophy," by Dr. Arnott, which is as delightful reading as the "Arabian Nights' Entertainments," and as full of marvels.

ALDBOROUGH.—We shall vary the contents of each number as much as possible. Each of the subjects you have named will be treated in due succession. It will require six months to develop all our resources.

BRACT.—There are specimens to be seen flowering at the proper season, at the Royal Botanical Gardens, Kew.

ADDRESS.

To the youthful mind the World is full of Wonders. Every unfamaliar thing is wonderful. Every fact in the Book of Nature, every event in the Annals of History, every incident in the Lives of the Good and Great, is a marvel to young minds, and needs no gloss to render it attractive. It is an error to suppose that the dawning intellect requires morbid and sensational intellectual food. Youth is the most susceptible period of life, when the impressions received, the tastes formed, and the opinions adopted, mould the character for good or evil. The boy is the father of the man. How important then it is that first impressions should be sound and truthful, for unlearning is a most difficult, and nearly impossible task.

With a view of inspiring a taste for whatever is beautiful in Nature, admiration for the excellences of Art, emulation of the conduct of those who have contributed by their example to the ennobling of mankind, and an interest in the patient and persevering labours of those who have devoted their lives to exploring the paths of Science, we now present our WONDER BOOK to the rising generation.

In our efforts to instruct and amuse, truthfulness will be our chiefest guide. In the unperverted youthful mind, a love of truth is instinctive. To gratify this love we shall draw as much as possible from the pages of fact and experience, without, however, deserting the flowery paths of pure fiction. In our WONDER BOOK, fiction will be given for what it really is, and never disguised as truth.

The youth of each succeeding generation occupies a higher platform than its predecessors. In order to successfully grapple with the future it needs new guides and interpreters, animated by the spirit of the present hour rather than by the traditionary forms of the past. In the WONDER BOOK it will be our aim to lead our youthful readers through easy and pleasant paths to an appreciation of this new world of Nature and Art. The results of explorations into the three kingdoms of Nature, the wonders of the Heavens, the Atmosphere, and the Ocean, will be presented in new and attractive guise, by the pens of the ablest writers. The Historians and the Biographers have culled fresh facts, Travellers have enriched Geographical Science with many new and marvellous pages, which will be duly garnered into our WONDER BOOK. We shall also supply material for the exercise of rational ingenuity and profitable industry, for healthful recreation and amusement, and, in short, by every means in our power strive to excite in the minds of our readers ennobling thoughts, pure tastes, and a desire to imitate the noble examples of industry, integrity, and self-denial we shall place before them.

The WONDER BOOK is printed in a new, clear, readable type; the wood-cut illustrations are of the highest excellence: in addition to which, each number is illustrated with a beautiful design, printed in colours, illustrating some curious phenomenon of Nature or feature in Natural History.

The topics that will be successively treated in the WONDER BOOK are almost too numerous to be detailed in a Prospectus. We may, however, mention Natural History, Science, History, Biography, Mechanical Recreations, Games and Sports, Photography, Natural Magic, Travels and Adventures, Manners and Customs, Legends and Fables, the Arts of Painting, Engraving, Music, Poetry, and the Wonders of the Heavens and of the Ocean.

As exercises for ingenuity, we propose to substitute for Riddles, Puzzles, &c., the various Examination Papers for Candidates for the various appointments in the Civil Service, as being equally amusing, and far more profitable and instructive. Prizes will be awarded for special subjects submitted to competition among the subscribers to the BOY'S WONDER BOOK.

WONDERS OF THE EARTH.

AN EXCURSION TO THE LADIES' GROTTO AT TAURAT.

TOWARDS the northern extremity of the hill of Taurat, in the south of France, the rock appears to have fallen in over a space of several square yards, exhibiting a very deep circular excavation. This is the entrance to the Ladies' Grotto; and iron railing and steps are arranged to facilitate access. In the course of a few minutes we found ourselves all assembled at the bottom of this sort of well. Candles and torches were



THE LADIES' GROTTO.

lighted; and bidding adieu to the sun for a few hours, we disappeared with our guides through a fissure which forms the entrance of the Vestibule.

We had not proceeded very far before we got a pretty good notion of the strength of the calcareous deposits accumulated in this cavern. Enormous stalactites erect their white and capricious profiles; the sides of the rock

appear to be covered with petrified snow, spotted here and there with transparent crystals like icicles, radiating every colour of the spectrum from the rays of our torches.

This however, is only the prelude to still stranger wonders. We descend to the bottom of the Vestibule, which a door separates from the other parts; this is a necessary precaution taken against indiscreet persons whom an imprudent curiosity might lead to enter, without guides, the inextricable labyrinth we next proceed to enter. We cease descending a few moments in order to ascend towards the hall named the Royal Mantle. There we encounter a magnificent and strange surprise; an immense drapery of stone artistically thrown upon a portmanteau of rock, hangs from a point of the vaulted roof, dropping its undulating and harmonious folds like velvet or satin. Nothing I have seen appears to me so curious and surprising as this singular work of Nature, it might serve as a model for fairies.

We break away from this fascinating scene and descend to the Great Hall, or as it is sometimes called, the Hall of the Virgin. Hitherto our subterranean peregrination has been accomplished without much difficulty, some very narrow fissures, some gaps rather wide to leap over, and that was all the gymnastic effort required of us. But now every one of our party has to display all the resources of his agility and muscular activity: he must assume postures somewhat unusual in ordinary life, crawl on all fours, or even on his belly, or drag himself along on his back, or walk bent double, slide along a ledge of rock but twice the width of his hand, descend rocks almost as high and perpendicular as houses, climbing, with candle between his teeth, all protuberances, and very often not venturing to plant the foot until the spot has been examined by the light of the candle. We do not assume to be heroes, however, and there is no very serious danger. The really dangerous spots, the famous *pas du diable* for instance, through which we pass into the Great Hall, has been furnished with iron railing, and a ladder of the same material replaces the adventurous rope ladder of former times. No accident has ever occurred, although many elegant ladies have, on many occasions, courageously explored the grotto in its minutest details.

There are splendid compensations for our fatigue in store. The Hall of the Virgin, which we next enter, is literally crowded with the strangest and most surprising formations. No where else in the world, assuredly, has Nature accumulated her most marvellous works in greater profusion. I need only mention the Imperial Mantle, a beautiful drapery of the same nature as that seen upon quitting the vestibule; but especially deserving mention is the Grand Organ, the most imposing of these singular and gigantic creations of accident. At the sight of the alabaster pillars, as lofty as cathedral towers, of the enormous organ cases, that stand out from the circular sides in startling bold relief, of the cupola, covered with dazzling white spires, as though carved by the patient chisel of a sculptor of the middle ages, we feel for a moment overwhelmed with awe. Every Bengal light displayed, throwing a different light upon the grand and exciting scene, extorts cries of admiration from every breast.

We next approach the legendary chamber of the cavern, which has given its name to the vast hall in which we now stand. So our guides neglect no means of showing it under its most magical aspect, and to derive the greatest advantage from the display. It is a real theatrical transformation scene, on the most gigantic scale. We arrive at a spot where our footsteps are suddenly arrested by a precipice, which the rock embraces in a semi-circular curve. At the request of our guides every light is extinguished. Meanwhile he slides along the side, over the gulph, and places a Bengal light upon a cornice. Suddenly the flame bursts out and strikes full on the statue of a draped and crowned female figure, rising up from the depths of the abyss, and depicting upon the absolutely black ground the singular and marvellous outline of its colossal form. This is the Virgin. The first impression is really very striking, and easily explains the *naive* and miraculous legends to which this singular phenomenon has given birth.

The Virgin is the last picture in this long and fantastic gallery; but we determined to descend to the bottom of the grotto. This is a little bit of vanity on our part, but we were particularly desirous of ascertaining the exact height of the vault, which is estimated at 110 yards.

We soon breathed freely again in the open air of the plain of Taurat. We bid farewell to our trusty guides, our memory stored with impressions which nothing can efface, and our carriage quickly carried us to the charming little village of Ganges.

THE MAROONS OF JAMAICA.

THE Maroons! It was a word of peril once; and terror spread along the skirts of the blue mountains of Jamaica, when some fresh foray of those unconquered guerillas swept down upon the outlying plantations, startled the assembly from its order, General Williamson from his billiards, and Lord Balcarres from his diplomatic ease, endangering, according to the official statement, "public credit," "civil rights," and "the prosperity, if not the very existence of the country," until they were "persuaded to make peace" at last. They were the Circassians of the New World; but they were black, instead of white; and as the Circassians refused to be transferred from the Sultan to the Czar, so the Maroons refused to be transferred from Spanish dominion to English, and thus their revolt began, the difference is, that, while the white mountaineers numbered four hundred thousand, and only defied Nicholas, the black mountaineers, numbered less than two thousand, and defied Cromwell; and while the Circassians, after thirty years of revolt, seem now at last subdued, the Maroons, on the other hand, who rebelled in 1655, were never conquered, but only made a compromise of allegiance, and exist as a separate race to-day.

When Admirals Penn and Venables landed in Jamaica, in 1655, there was not a remnant left of the sixty thousand natives whom the Spaniards had found

there a century and a half before. Their faithful tale is told only by those caves still known among the mountains, where thousands of human skeletons strew the ground. In their place dwelt two foreign races, an effeminate, ignorant, indolent, white community of fifteen hundred, with a black slave population, quite as large and infinitely more hardy and energetic. The Spaniards were readily subdued by the English; the negroes remained unsubdued; the slaveholders were banished from the island; the slaves only banished themselves to the mountains: thence the English could not dislodge them, nor the buccaneers, whom the English employed. And when Jamaica subsided into a British colony, and peace was made with Spain, and the children of Cromwell's puritan soldiers were beginning to grow rich by importing slaves for Roman Catholic Spaniards, the Maroons still held their own wild empire in the mountains, and, being sturdy heathens every one, practised Obeah rites in approved Pagan fashion.

The word Maroon is derived, according to one etymology, from the Spanish word *Marrano*, a wild boar—these fugitives being all wild-boar hunters,—according to another, from *Marony*, a river separating French and Dutch Guiana, where a colony of them dwelt and still dwells; and by another still, from *Cimarron*, a word meaning untamable, and used alike for apes and runaway slaves. But whether these rebel-marauders were regarded as monkeys they made themselves equally formidable. As early as 1663, the Governor and Council of Jamaica offered to each Maroon, who should surrender, his freedom and twenty acres of land; but not one accepted the terms. During forty years, forty-four Acts of Assembly were passed in respect to them; and at least a quarter of a million pounds sterling were expended in the warfare against them. In 1733, the force employed against them consisted of two regiments of regular troops and the whole militia of the island, and the Assembly said that "the Maroons had within a few years greatly increased, notwithstanding all the measures that had been concerted for their suppression," "to the great terror of his Majesty's subjects," and, "to the manifest weakening and preventing the further increase of the strength and inhabitants of the island."

The special affair in progress, at the time of these statements, was called Cudjoe's War. Cudjoe was a gentleman of extreme brevity and blackness, whose full-length portrait can hardly be said to adorn "Dallas's History;" but he was as formidable a guerilla as Marion. Under his leadership, the various bodies of fugitives were consolidated into one force, and thoroughly organized. Cudjoe, like Schamyl, was religious as well as military head of his people; by Obeah influence he established a thorough freemasonry among both slaves and insurgents; no party could be sent forth by the government but he knew it in time to lay an ambush, or descend with fire and sword on the region left unprotected. He was thus always supplied with arms and ammunition; and as his men were perfect marksmen, never wasted a shot and never risked a battle, his forces naturally increased while those of his opponents were decimated. His men were never captured, and never took a prisoner; it was impossible to tell when they were defeated; in dealing with them, as Pelissier said of the Arabs, "peace was not purchased by victory;" and the only men who could obtain the slightest advantage against them were the imported Mosquito Indians, or the "Black

Shot," a company of government negroes. For nine full years this particular war continued unchecked, General Williamson ruling Jamaica by day, and Cudjoe by night.

The rebels had every topographical advantage, for they held possession of the "Cockpits." Those highlands are furrowed through and through, as by an earthquake, with a series of gaps or ravines, resembling the California canons, or those similar fissures in various parts of the Atlantic States, known to local fame, either poetically as ice-glens, or symbolically as purgatories. These chasms vary from two hundred yards to a mile in length; the rocky walls are fifty or a hundred feet high, and often absolutely inaccessible; while the passes at each end admit but one man at a time, They are thickly wooded wherever trees can grow; water flows within them; and they often communicate with one another, forming a series of traps for an invading force. Tired and thirsty with climbing, the weary soldiers toil on, in single file, without seeing or hearing an enemy: up the steep and winding path they traverse one "cockpit," then enter another. Suddenly a shot is fired from the dense and sloping forest on the right, then another and another, each dropping its man; the startled troops face hastily in that direction, when a more murderous volley is poured from the other side; the heights above flash with musketry, while the precipitous path by which they came seems to close in fire behind them. By the time the troops have formed in some attempts at military order, the woods around them are empty, and their agile and noiseless foes have settled themselves into ambush again farther up the defile, ready for a second attack, if needed. But one is usually sufficient;—disordered, exhausted, bearing their wounded with them, the soldiers retreat in panic, if permitted to escape at all, and carry fresh dismay to the barracks, the plantations, and the government house.

It is not strange, then, that high military authorities at that period should have pronounced the subjugation of the Maroons a thing more difficult than to obtain a victory over an army in Europe. Moreover, these people were fighting for their liberty, with which aim no form of warfare could be unjustifiable; and the description given by Lafayette of the American Revolution was true of this one, "the grandest of causes won by contests of sentinels and outposts." The utmost hope of a British officer, ordered against the Maroons, was to lay waste a provision-ground or cut them off from water. But there was little satisfaction in this, the wild pine-leaves and the grape-vine-withes supplied the rebels with water, and their plantation-grounds were the wild pine-apple and the plantain-groves, and the forests, where the wild boars harboured, and the ringdoves were as easily shot as if they were militia-men. Nothing but sheer weariness of fighting seems to have brought about a truce at last, and then a treaty, between those high contracting parties, Cudjoe and General Williamson.

But how to execute a treaty between these wild Children of the Mist and respectable diplomatic Englishmen? To establish any official relations without the medium of a preliminary bullet, required some ingenuity of manœuvring. Cudjoe was willing, but inconveniently cautious; he would not come half-way to meet any one; nothing would content him but an interview in his own chosen cockpit. So he selected one of the most difficult passes, posting in the forests a series of

outlying parties, to signal with their horns, one by one, the approach of the plenipotentiaries, and then to retire on the main body. Through this line of perilous signals, therefore, Colonel Guthrie and his handful of men bravely advanced, horn after horn they heard sounded, but there was no other human noise in the woods, and they advanced till they saw the smoke of the Maroon huts before they caught a glimpse of a human form.

A conversation was at last opened with the invisible rebels. On their promise of safety Dr. Russell advanced alone to treat with them; then several Maroons appeared, and, finally, Cudjoe himself. The formidable chief was not highly military in appearance, being short, fat, humpbacked, dressed in a tattered blue coat without skirts or sleeves, and an old felt hat without a rim. But if he had blazed with regimental scarlet, he could not have been treated with more distinguished consideration; indeed, in that case "the exchange of hats" with which Dr. Russell finally volunteered, in Maroon fashion, to ratify negotiations, would have been a less severe test of good fellowship. This fine stroke of diplomacy had its effect, therefore the rebel captain agreed to a formal interview with Colonel Guthrie and Captain Sadler, and a treaty was at last executed with all due solemnity under a large cotton-tree at the entrance of Guthrie's defile. This treaty recognised the military rank of Captain Cudjoe; Captain Accompong and the rest gave assurance that the Maroons should be "for ever hereafter in a perfect state of freedom and liberty;" ceded to them fifteen hundred acres of land, and stipulated only that they should keep the peace, should harbour no fugitive from justice or from slavery, and should allow two white commissioners to remain among them simply to represent the British Government.

During the following year a separate treaty was made with another large body of insurgents, called the windward Maroons. This was not effected, however until after an unsuccessful military attempt, in which the mountaineers gained a signal triumph. By artful devices—a few fires left burning, with old women to watch them, a few provisions, grounds exposed by clearing away the bushes—they lured the troops far up among the mountains, and then surprised them by an ambush. The militia all fled, and the regulars took refuge under a large cliff in a stream where they remained four hours up to their waists in water, until finally they forded the river, under full fire, with terrible loss. Three months after this, however, the Maroons consented to an amicable interview, exchanging hostages first. The position of the white hostage, at least, was not the most agreeable; he complained that he was beset by the women and children, with indignant cries of "Buckra, Buckra!" while the little boys pointed their fingers at him as if stabbing him, and that with evident relish. However Captain Quas, like Captain Cudjoe, made a treaty at last, and hats were interchanged instead of hostages.

Independence being thus won and acknowledged, there was a suspension of hostilities for some years. Among the wild mountains of Jamaica the Maroons dwelt in a savage freedom. So healthful and beautiful was the situation of their chief town, that the English Government has erected barracks there of late years, as being the most salubrious situation on the island. They breathed an air ten degrees cooler than that inhaled by the white population below, and they lived on a daintier diet, so that the English epicures used to go up among them

for good living. The mountaineers caught the strange land-crabs, plodding in companies of millions their sidelong path from mountain to ocean, and from ocean to mountain again. They hunted the wild boars, and prepared the flesh by salting and smoking it in layers of aromatic leaves, the delicious "jerked hog" of Buccaneer annals. They reared cattle and poultry, cultivated corn and yams, plantains and cocoas, guavas and papaws, and mameys, and avocados, and all luxurious West India fruits: the very weeds of their orchards had tropical luxuriance in their fragrance and in their names; and from the doors of their little thatched huts they looked across these gardens of delight to the magnificent lowland forests; and over those again to the faint line of far off beach, the fainter ocean horizon, and the illimitable sky.

They had senses like those of the Indians, tracked each other by the smell of the smoke of fires in the air, and called to each other by horns, using a special note to designate each of their comrades, and distinguishing it beyond the range of ordinary hearing. They spoke English, diluted with Spanish and African words, and practised Obeah rites quite undiluted with Christianity. Of course, they associated largely with the slaves without any very precise regard to treaty stipulations; sometimes brought in fugitives, and sometimes concealed them; left their towns and settled on the planters' lands, when they preferred them, but were quite orderly and luxuriously happy. During the formidable insurrection of the Koromantyre slaves in 1760, they played a dubious part; when left to go on their own way, they did something towards suppressing it; but when placed under the guns of the troops and ordered to fire on those of their own colour, they threw themselves on the ground without discharging a shot. Nevertheless, they gradually came up into rather reputable standing; they grew more and more industrious and steady; and after they had joined very heartily in resisting D'Estaing's threatened invasion of the island in 1779, it became the fashion to speak of "our faithful and affectionate Maroons."

In 1795, their position was as follows:—Their numbers had not materially increased, for many had strayed off and settled on the outskirts of plantations; now materially diminished, for many run-away slaves had joined them, while there were also separate settlements of fugitives, who had maintained their freedom for twenty years. The white superintendents had lived with the Maroons in perfect harmony, without the slightest official authority, but with a great deal of actual influence. But there was an "irrepressible conflict" behind all this apparent peace, and the slightest occasion might at any moment revive all the old terror. That occasion was close at hand.

Captain Cudjoe and Captain Accompong, and the other founders of Maroon independence had passed away, and "Old Montagu" reigned in their stead, in Trelawny Town. Old Montagu had all the pomp and circumstance of Maroon majesty; he wore a laced red coat, and a superb hat with gold lace and plumes; none but Captains could sit in his presence; he was helped first at meals, and no woman could eat beside him; he presided at councils as magnificently as at table, though with less appetite; and possessed, meanwhile, not an atom of the love or reverence of any human being. The real power lay entirely with Major James, the white superintendent, who had been brought up among the Maroons by his

father (and predecessor) and who was the idol of this wild race. In an evil hour, the government removed him, and put a certain unpopular Captain Craskell in his place; and as there happened to be, about the same time, a great excitement concerning a hopeful pair of young Maroons who had been seized and publicly whipped, on a charge of hog stealing, their kindred refused to allow the new superintendent to remain in the town. A few attempts at negotiation only brought them to a higher pitch of wrath, which ended in their despatching the following remarkable diplomatic note to the Earl of Balcarres:—

"The Maroons wishes nothing else from the country but battle, and they desires not to see Mr. Craskell up here at all. So they are waiting every moment for the above on Monday. Mr. David Schaw will see you on Sunday morning for an answer. They will wait till Monday nine o'clock; and if they don't come up, they will come down themselves."

(Signed) "COLONEL MONTAGU AND ALL THE REST."

It turned out at last, that only two or three of the Maroons were concerned in this remarkable defiance; but meanwhile it had its effect. Several ambassadors were sent among the insurgents, and were so favourably impressed by their reception as to make up a subscription of money for their hosts on departing; only the "gallant Colonel Gallimore," a Jamaica Camillus, gave iron instead of gold, by throwing some bullets into the contribution-box. And it was probably in accordance with his view of the subject, that when the Maroons sent ambassadors in return, they were at once imprisoned, most injudiciously and unjustly; and when Old Montagu himself, and thirty-seven others following, were seized and imprisoned also, it is not strange that the Maroons, joined by many slaves, were soon in open insurrection.

(To be continued.)

TOM'S POCKET MONEY, AND HOW HE MADE IT.

TO THE REV. DR. PRIMROSE.

REVEREND SIR,

I HAVE paid another visit to my schoolfellow Robert, and have now the pleasure of communicating to you what I saw and heard on that occasion. I went to inspect the ducks and pigeons, of which I had heard a very flattering account, but I found the ducks so interesting, that I had no time left to bestow on the pigeons.

There is a pretty little lake or pond in my friend Bob's garden: its banks are well lined with reeds and aquatic plants. As soon as I met my friend, after welcoming me, he led the way to the lake, saying, "I want to show you my Carolina ducks."

"Carolina ducks," said I, "why how did you come by them?"

"A present from Captain Maury," replied Bob, "the prettiest pair that ever was seen, as you will say when you see them."

We soon arrived at the bank of the lake, and I looked across it, but could see only some half dozen of the ordinary kind of ducks; but my friend gave a peculiar whistle, and out of a nook concealed among the reeds, came swimming along, the prettiest, funniest looking pair of ducks that I had ever seen. As they came direct towards my friend, it was amusing to see how all the other ducks made way for them, which deference, however, did not prevent the pets thrusting out their bills for an attack. They had quite an air of superiority about them, and I must say, showed no little pugnacity in their demeanour: like Irishmen, they seemed only too eager to quarrel; but in the absence of any one willing to contest with them, the peace of the lake was unbroken.

"What do you think of them, Harry?" said my friend.

"Beautiful creatures," I replied, "tell me all about them, and particularly how you manage them."

"Captain Maury told me that the Carolina duck, usually builds its nest in the trunk of an old tree, some height above the water, and as they fly easily, I clipped their wings, and provided them with a nest in a box about a yard square, which you may see over yonder there in the nook among the reeds. They did not take to it at once, but surveyed it externally and examined the interior, till at last the duck accommodated herself to the lodging provided for her. With some short straw and hay which I provided, she built her nest, and then she shut herself up in her tenement for an hour or two every other day, and to all appearance, began laying eggs."

You may suppose that this event caused us much pleasure, and great was our curiosity to see and especially to count the eggs, which we fancied must be as pretty as the bird which laid them; but prudence restrained us, for the bird would doubtless have resented such an impertinent intrusion, and deserted her nest.

"You think she would, Bob?"

"Pretty sure of it. Early in April our pet ceased to make her appearance in public. Now she's hatching her eggs, I thought. She buried herself in the darkness of her cell, and only came out twice a day to feed, morning and evening, about a quarter of an hour each time. Had she kept time by the clock, she could not have been more regular."

"How remarkable. Is that a specimen of what is called instinct?"

"I suppose it is: certainly it was not training, nor teaching."

"Well, Bob, go on. What next?"

"I was going to tell you how the duck behaved when she came out of her cell into the world. When the usual time arrived, she would first pop her pretty head and neck out of the opening in the box, look first to the right and then to the left, to see if any enemy was nigh: then she shot out like an arrow from a bow, took a few turns in swimming, and then went straight to the feeding-trough, and seized the pieces of bread I had provided for her. Her hurried meal over, she proceeded to make her toilet. What washings and divings, and splashings, and flapping of wings! Then, to crown all, standing on the bank among the forget-me-nots, how diligently she cleaned her feathers! The quarter-hour of recreation for her and for us soon passed, when she quietly returned to the water, made a few evolutions with the most indifferent air possible, then darting

suddenly straight to her nest, she disappeared, to begin again the same ceremonies, with a few variations, at the next appearance."

"And where was her respected spouse, Mr. Drake, all this time?"

"He, poor fellow, was not a henpecked husband, but a duck-pecked. Formerly the most assiduous and attentive companion of his better-half, he was now left solitary and alone. A prey to single weariness, he scarcely took the pains to divert himself by a little swimming. He would stand for hours on the bank opposite to the nest, watching for the slightest movement, with his head thrown back or tucked under his wing, in the completest state of resignation imaginable."

"You have read 'Fontaine's Fables,' of course, Bob?"

"How he would have enjoyed the scene. What a pretty fable he would have made of it, 'The Disconsolate Drake.'"

"Poor drake! he seemed to know when the hour arrived for his mate to come forth, and then he would throw himself into the water, and swim up and down before the nest: and if the duck was a moment behind her time, he would utter the sweet and musical cry which is peculiar to this species."

"A duck musical! What next?"

"Do not suppose that he exhibited any joy at the appearance of his mate: he performed a duty, a simple duty, of which he acquitted himself in obedience to the laws of instinct. Besides, he placed himself behind the duck at a distance of three or four feet, and followed her imperturbably, always keeping behind at the same respectful distance. He looked just like a livery servant following a duchess, and his gay livery added to the portrait, which was completed by the great lady, who took no more notice of him than if he had never existed. Woe to any uncivilized duck that crossed her path: her body guard was at hand, and performed his office bravely, and soon brought the insolent varlet to his senses."

"How amusing, Bob, to think that ducks had so much fun in them! A flunkey drake! how droll!"

"But he was not altogether a footman. While watching and protecting his mate, he never forgot his authority as husband. When madam had finished her promenade, and was washed and combed, if she took a fancy to amuse herself any longer, Monsieur Drake immediately presented himself under quite another character. He began by swimming a little nearer to her, and would lead the way towards the nest. When they were arrived there she would escape again, but he would then become more pressing, and soon, either under the influence of an expression of grumbling or threatening, or under a sense of revived maternal feeling, she would return to her nest."

"I suppose Mr. Drake thought that was the best and properest place for madam: her eggs were getting cold."

"I remember, one day, how much we were alarmed, and that Mr. Drake, good fellow, saved everything. According to all calculations the thirty days of incubation had elapsed, and yet no young ducklings made their appearance. What could have happened? Were the eggs addled or broken? had the little ones been devoured by rats or weazels? Everybody was in a state of excitement. What should we do? what could we do? I thought it best to do nothing until the following day, and that was doubtless the right thing to do. But how

could I contend with so many doubts and anxieties, so much impatience and curiosity?"

"I should have felt anxious and impatient, too, at such a time, I am sure."

"Taking advantage of the duck's leaving her nest, I slipped my rash hand into the box, and at first I thought I had got the whole young brood, for I could feel nothing but feathers; but upon feeling deeper, I recognized that every one of the eggs was entirely enveloped in a thin covering of *down*, arranged like wadding, and each in this perfect packing close against the others.

"How curious! what a careful mother! How many eggs were there?"

"Eight: of a light green colour, and much rounder than hen's eggs. I took out one without removing the down, and through a little starry crack in the shell I heard—O surprising! a cry, the first cry of the prisoner within. I hastened with every precaution to restore the precious object to its place, and quietly and discreetly withdrew. The duck had seen nothing of my invasion: her attention was fully occupied with some bread and milk, with which the children were feeding her, and the dainties had made her forget her duties for a time."

"Ducks have very good eyesight, Bob."

"So I conclude, Harry, from what took place, as I shall now tell you. Of course there was great curiosity to learn what I had discovered, and I was complimented upon my cleverness. While doing so, madam returned to her nest, escorted by her little guardian, who as usual swam up and down before the entrance. We waited in the greatest possible state of anxiety, for we felt that the critical moment had now arrived."

"It makes me tremble to think of it, Bob."

"At last the duck made a rush towards her nest, but she no sooner put her head in than she backed out in quite a flurry, and soon let us know by her gestures that something was wrong."

"Good gracious, Bob! what did you do?"

"Held my breath in suspense, and really began to despair. The duck swam off, for at least a quarter of an hour, in a state of agitation and anger; then we began to hope that she would be reconciled again, but she kept it up quarter hour after quarter hour, until an hour and a-half had elapsed. 'What will become of the ducklings?' thought I. 'All lost, surely.'"

"Oh! Bob, what a pity."

"Pity me not, but lend a serious ear unto what I shall unfold."

Mr. Drake seemed at first to pity madam, and behaved as though he wished to console her, at last he grew impatient and angry; you could easily see he was scolding her, saying as plain as could be, go back to your nest, or your eggs will all be addled, and he tried to drive her into her nest. She, poor dame, seemed at times inclined to forget and forgive all, but nothing could overcome her repugnance at the invasion of her domicile, although how she could have found out that I had been there, I cannot imagine. She must have taken particular notice of everything, even of trifles light as down. Back she would not go, and I sat down on the margin of the lake, took out my pocket handkerchief, and—

"Piped your eye, of course Bob."

"Well, nearly. But I could not reconcile myself to losing the brood, so I

began to consider how it might be saved. I thought I would remove the eggs from the nest, and finish the hatching by means of bottles of hot water; but fortunately conjugal authority, in its most expressive form, came to our assistance. Mr. Drake grew tired of coaxing and persuading his better-half, and fully aware of the urgency of the occasion, and the necessity for prompt measures, he attacked her with his beak, and by repeated blows in lieu of milder persuasive arguments, he accomplished in the twinkling of an eye what he had failed to do in an hour by his other tactics. Madam returned to her maternal duties resignedly: we breathed freely again. Next day we had the satisfaction of seeing the whole brood swimming about on the lake to the great joy and pride of their parents."

"Bravo, Bob! All's well that ends well."



WONDERFUL CHARACTERS.

MENDEZ-PINTO.

FERNAM MENDEZ-PINTO, a Portuguese adventurer, was born at Old Montemayor, near Coimbra, about 1510. He was the child of poor parents, and in 1521 was placed in the service of a noble lady of Lisbon. At the end of a year and a half an adventure, the particulars of which are not known, put his life in peril, and caused him to embark precipitately on a ship just going to sea. The vessel was soon taken by pirates, who, after much ill-treatment, put him ashore on the coast of Portugal. Afterwards he passed into the service successively of two noblemen, and at length, in search of fortune, sailed for the East Indies, and in 1537 arrived at Diu on the west coast of Hindustan, which city the Portuguese had seized and fortified two years before. Here he embarked as a volunteer in a vessel sent to cruise against the Turks in the Indian Ocean and the Red Sea.

After various adventures and a visit to Abyssinia, Pinto was captured by the Turks near Babelmandeb, carried to Mocha, and sold as a slave—first, to a Greek renegade, and next to a Jew, from whom he was ransomed by the Portuguese governor of Ormuz, who furnished him with the means of returning to

India. At Goa, he met Don Pedro de Faria, Captain-general of Malacca, who, perceiving his ability, took him into his service and sent him on numerous missions to the native princes. On one of these expeditions he was shipwrecked, made a slave, and sold to a Muhammadan merchant, who carried him to Malacca for ransom. He was soon sent on another mission to the Gulf of Siam; but his vessel, while lying in the river near Lugor, was boarded and captured by pirates. He escaped, though wounded, by swimming to the shore, and having reached Patana, a Portuguese port south of Lugor, he engaged with some friends in fitting out a small cruiser, and went in search of the pirates, several of whose vessels richly laden the Portuguese captured, though they soon lost by shipwreck all the treasures thus acquired.

Pinto and his companions then procured still another vessel, met and captured the pirate who had robbed them at Lugor, suffered another shipwreck, and some of them having been detained as prisoners at a town on the coast of China, the others rescued them and plundered the place, and then put into Liampo, or Ningpo, as it is now called.

Here Pinto and some other Portuguese, in May 1542, were persuaded by a Chinese pirate to undertake an expedition to the island of Calempui, not far from Peking, where, as they were led to believe, were the tombs of 17 Chinese kings containing vast treasures. Their attempt to plunder these tombs was only partially successful, and they fled terrified at the alarm raised by the guardians of the treasures.

Shortly afterwards they were again shipwrecked on the Chinese coast, and after witnessing the drowning of most of his comrades, Pinto, with a few others, got on shore, where they lived awhile by begging, but being apprehended and taken to Nanking, and on a charge of being thieves, were condemned to lose their thumbs; but by appealing, they got this punishment commuted into imprisonment in the town of Quansi, on the northern frontier, where they were set to work in repairing the great wall. They were delivered in a few months by an inroad of Tartars, who carried them to assist in the siege of Peking, and then took them back to Tartary.

After a short residence in that country, Pinto went in the train of an ambassador to Cochin China, and from there made his way to Macao, which was not yet occupied by the Portuguese. Here, in default of any other resource, he enlisted with two other Portuguese in the service of a Chinese pirate, whose vessel, after a desperate engagement with a superior force of other pirates, escaped under cover of the night, and was driven by a gale to the coast of Japan, which had not then been visited by Europeans.

Pinto was well received by the Japanese, and after a considerable stay in their country, he sailed back to Liampo with the Chinese pirate. His report of the discovery of Japan, and its great wealth and magnificence, created such an excitement among the Portuguese at Liampo, that in fifteen days nine hastily-equipped ships were despatched for the new Eldorado. Eight of them foundered on the voyage, and the one in which Pinto sailed was driven to the Loo Choo Islands, then first seen by Europeans, and wrecked there. Pinto with difficulty got ashore, and after many fresh adventures and dangers, found

his way back in a Chinese junk to Liampo, whence after still more vicissitudes he proceeded to Malacca.

He next visited Pegu, Siam, Java, and some of the neighbouring countries, in which he met with a singular variety of fortune; and in 1547 he embarked at Malacca on a second voyage to Japan. Soon after his arrival there a civil war broke out, in which Pinto took part for awhile; but having at length profitably disposed of the merchandise he carried thither, he returned to Malacca, where he met St. Francis Xavier, "the apostle of the Indies," with whom in the course of a few months he made a third visit to Japan, arriving there in August 1548.

By these voyages to Japan Pinto acquired great wealth, and in 1553 he was at Goa, preparing to return to Portugal, when the arrival there of the body of Xavier, and his conferences with Father Nugnes Barreto, the Vice-Provincial of the Jesuits, so excited his religious enthusiasm, that he devoted his whole fortune, except 2,000 crowns which he sent to his poor relations in Portugal, to the foundation of a seminary for propagating the faith in Japan.

He was then appointed ambassador from the Portuguese Viceroy of India to the King of Bungo in Japan, and sailed for that country in company with the Jesuit Nugnes. Before setting out he took the vows as a member of the order of Jesuits; but on his arrival in Japan his zeal evaporated, and he was released from his vows. He returned with Nugnes to Goa, and sailed thence for Lisbon, where he arrived Sept. 22, 1558, bearing to the Queen Regent a letter from the Viceroy at Goa, recommending him warmly to the favour of the government as a man of the highest experience in East Indian affairs.

He spent a few years in attendance on the court which brought him nothing but promises, and which he says were more tedious and harrassing than his twenty-one years of service in the East, though during that time he had been thirteen times taken by the enemy and seventeen times sold as a slave.

The first extant account of his travels and adventures is given in a collection of Jesuits letters published in Italian at Venice in 1565. He wrote a full narrative of his life, which was published long after his death by Francisco de Andrada, under the title of *Peregrinacao de Fernam Mendez-Pinto* (4to., Lisbon, 1614). Few books have been more popular. Pinto's reputation in English literature has suffered greatly by an oft quoted line in Congreve's "Love for Love." "Ferdinand Mendez-Pinto was but a type of thee, thou liar of the first magnitude!" But it is now admitted by critics and scholars that his general veracity cannot be disputed. The countries in which his adventures happened are still many of them little known, but the more they have been explored, the more has the correctness of his statements been apparent. Remusat, the eminent Chinese scholar, cites him as good authority for facts, and Malte Brun remarks that in writing about eastern Asia, he had carefully examined Pinto's work, and was strongly confirmed in his opinion of the reality of his adventures and the general correctness of his memory.

Old Travellers.

THE PEREGRINATIONS OF MENDEZ PINTO.

CHAPTER I.

AFTER WHAT MANNER I PASS MY YOUTH IN THE KINGDOM OF PORTUGAL, UNTIL MY GOING TO THE INDIES.

So often as I represent unto myself the great and continual Travels that have accompanied me from my birth, and amidst the which I have spent my first years, I find that I have a great deal of reason to complain of Fortune, for that she seemeth to have taken a particular care to persecute me, and to make me feel that which is most insupportable in her, as if her glory had no other foundation than her cruelty. For not content to have made me be born, and to live miserably in my country during my youth, she conducted me, notwithstanding the fear I had of the dangers that menaced me, to the East Indies, where instead of the relief which I went thither to seek, she made me find an increase of my pains, according to the increase of my age.

Since then it hath pleased God to deliver me from so many dangers, and to protect me from the fury of that adverse Fortune, for to bring me into a port of safety and assurance; I see that I have not so much cause to complain of my travels past, as I have to render him thanks for the benefits which until now I have received of him; seeing that by his Divine bounty he hath preserved my life, to the end I might have means to leave this rude and unpolished discourse unto my children for a memorial and an inheritance.

For my intention is no other but to write it for them, that they may behold what strange fortunes I have run for the space of one-and-twenty years, during the which I was thirteen times a captive, and seventeen times sold in the Indies, in Ethiopia, in Arabia, in China, in Tartary, in Madagascar, in Sumatra, and in divers other kingdoms and provinces of that Oriental Archipelago upon the confines of Asia, which the Chinese, Siamese, Gueros, and Lecquros name, and that with reason, in their geography, "the eyelids of the world," whereof I hope to treat more particularly and largely hereafter. Whereby men, for the time to come, may take example, and a resolution not to be discouraged for any crosses that may arrive unto them in the course of their lives. For no disgrace of fortune ought to swerve us never so little from the duty which we are bound to render unto God; because there is no adversity, how great soever, but the nature of man may well undergo it, being favoured with the assistance of Heaven.

Now, that others may help me to praise the Lord Almighty for the infinite mercy He hath showed me without any regard to my sins, which I confess were the cause and origin of all my misfortunes, and that from the same Divine Power I received strength and courage to resist them, escaping out of so many dangers, with my life saved, I take from the beginning of my voyage the time which I spent in this kingdom of Portugal, and say, that after I had lived there till I was about eleven or twelve years old in the misery and poverty of my

father's house within the town of Monte-mor Ovelho, an uncle of mine, desirous to advance me to a better fortune than that whereunto I was reduced at that time, and to take me from the caresses and cockerings of my mother, brought me to this city of Lisbon, where he put me into the service of a very honourable lady: the which he worried out of the hope he had, that by the favour of herself and her friends, he might attain to his desire for my advancement, and this was in the same year that the funeral pomp of the deceased King Emanuel, of happy memory, was celebrated at Lisbon—namely, St. Lucie's day, the 13th of December, 1521, which is the furthest thing I can remember.

In the meantime, my uncle's design had a success quite contrary to that which he hath promised to himself in favour of me; for having been servant of this lady about a year and a half, an accident befel me that cast me into manifest peril of life, so that to save myself I was constrained to abandon her house with all the speed that I possibly could.

Flying away, then, in very great fear, I arrived before I was aware at the Ford of Pedra, which is a small port so called: there I found a carvel of Alsama that was laden with the horses and stuff of a lord who was going to Setieval, where at that instant King Joana the Third kept his Court, by reason of a great plague that reigned in divers parts of the kingdom.

Perceiving, then, that this carvel was ready to put to sea, I embarked myself in her, and departed the next day. But alas! soon after we had set sail, having got to a place named Cezmibra, we were set upon by a French pirate who, having boarded us, caused fifteen or sixteen of his men to leap into our vessel, who, finding no resistance, made themselves masters of her.

Now, after they had pillaged every one of us, they emptied into their ship all the merchandise wherewithal ours was laden, which amounted to above six thousand ducats, and then sunk her; so that of seventeen of us that remained alive, not so much as one could escape slavery, for they clapped us all under hatches, bound hand and foot, with an intent to go and sell us at La Roche in Barbary, whither also, as we found by being amongst them, they carried arms to the Mahometans in way of trade.

For this purpose they kept us thirteen days together, continually whipping us; but at the end thereof it fortuned that about sunset they discovered a ship, unto which they gave chase all the night, following her close like old pirates long used to such thieveries. Having fetched her up by break of day, they gave her a volley of three pieces of ordnance, and presently invested her with a great deal of courage.

Now, though at first they found some resistance, yet they quickly rendered themselves masters of her, killing six Portuguese and ten or eleven slaves.

This was a goodly vessel, and belonged to a Portuguese merchant of the town of Conde, named Silvestre Godinho, which divers other merchants of Lisbon had laden at Saint Tome with great store of sugar and slaves, in such sort that those poor people seeing themselves thus taken and robbed, fell to lamenting their loss, which they estimated to be forty thousand ducats. Whereupon these pirates having gotten so rich a booty, changed their design of going to La Roche, and bent their course for the coast of France, carrying with them

such of ours for slaves as they judged fit for the service of their navigation. The remainder of us they left at night in the road, at a place called Melides, where we were landed, miserably naked, our bodies covered with nothing but the stripes of the lashes which so cruelly we had received the days before.

In this pitiful condition we arrived the next morning at St. Jago de Caten, where we were relieved by the inhabitants, especially by a lady that was there at that time, named Donna Beatrix, daughter of the Earl of Villanova, and wife to Alonzo Perez Pantoia, Commander and Grand Provost of the town.

Now, after the sick and wounded were recovered, each of us departed, and got him where he hoped to find the best assistance. For myself, poor wretch, I went with six or seven that accompanied me in my misery to Setuval. Thither I was no sooner come but my good fortune placed me in the service of Francisco de Faria, a gentleman belonging to the great Commander of St. Jago, who, in recompense of four years service that I did him, put me to the said commander to wait on him in his chambers, which I performed for a year and a-half after.

But in regard to the wages given at that time in noblemen's houses, they were so small that I was not able to live on them. Necessity constrained me to visit my master, with a design to embark myself by his favour to go to the Indies, for that, I thought, was the best way I could take to free me of my poverty; so, albeit I were but meanly accommodated, I embarked myself notwithstanding, submitting myself to whatever fortune should arrive unto me in those far countries, either good or bad.

CHAPTER II.

MY DEPARTURE FROM PORTUGAL FOR THE INDIES, AND MY EMBARKING THERE FOR THE STRAIT OF MECQUA.

It was in the year 1537, and the 11th of March, that I parted from this kingdom in a fleet of five ships, whereof there was no admiral, for each of those vessels was commanded by a particular captain.

These vessels, sailing different ways, arrived at length at a great port called Mozambique. There we met with the *Saint Michael*, that wintered there, and was commanded by Duart Tristao, who parted thence, richly laden, to return to Portugal; howbeit, I believe he was taken, or suffered shipwreck, as it happens but too often in this voyage to the Indies, for he was never heard of after.

After our five vessels were equipped with all that was necessary, and ready to set sail from Mozambique, the Lieutenant of the Fortress, called Vincent Pegado, showed the captains of the said five ships a mandate from the governor, named Numbo de Cunba, whereby he expressly commanded that all Portuguese ships which did arrive in that port this year should go to Diu, and leave their men there for the guard of the fortress, because of the fear they were in of the Turkish army, which was every hour expected in the Indies, by reason of the death of Sultan Bandur, King of Cambaya, whom the said governor had put to death the summer before.

In regard to this affair, which was of great importance, and was the cause of all the captains assembling together to deliberate thereupon, at length, to meet with the present necessity, they concluded that three of those five ships, appertaining to the king, should go to Diu, conformable to the contents of the said mandate, and that the other two, which belonged to private merchants, should pursue their course to Goa.

The king's three ships sailing to Diu, and the two merchants' ships towards Goa, it pleased God to conduct them safe thither. Now, as soon as the king's three ships came to the mouth of the river of the port of Diu, which fell on the 5th of September the same year, 1538, Antonio de Silvera, the brother of Louys Silvera, Earl of Sortelba, who was captain there at that time, gave them all the testimony that possibly he could of the joy he took of this their arrival; for proof whereof he bestowed liberally on every one, keeping a set table for above seven hundred persons which they brought along with them, besides his secret rewards and extraordinary gifts, whereby he supplied the necessities they had suffered during the voyage. Whereupon the soldiers considering how this captain entreated them very royally, that he paid them beforehand, distributed their pay and munitions unto them with his own hands, caused the sick to be carefully tended, and showed himself most ready to assist everyone, it so wrought upon them, that of their own accord they offered to stay there to serve him, being in no way constrained thereunto, as they used to be (in those countries) in all the fortresses which expect a siege.

This done, as soon as the three ships had sold the merchandise they had brought, they set sail for Goa, carrying none with them but the officers of the vessels, and some seamen to conduct them; where they abode till such time as the governor had given them despatches to go to Cochin, where being arrived they took in their lading, and returned all five safe into Portugal.

Seventeen days after we arrived at the fortress of Diu, where at that time two foists were already prepared to go to the Straits of Mecqua, to discover, and find out the design of the Turkish army, whose coming was greatly feared in the Indies, because one of those foists was commanded by a captain that was a great friend of mine, who gave me good hope of the voyage he was bound for, I embarked myself with him; relying then on the promises which the captain made me, that by his favour and means I should quickly be rich, the only thing in the world that I most desired, and suffered myself to be deceived by my hopes, I imagined that I was already master of great wealth, never considering how vain and uncertain the promises of men are, and that I could not reap much benefit by the voyage I was going to undertake, by reason it was dangerous, and unseasonable for navigation in that country.

Now being departed from Diu, we sailed in a time full of storms, because it was about the end of winter, which seemed to begin anew, so impetuous were the winds and so great was the rain. Nevertheless, how violent soever the tempest was, and dark the weather, we liked not to discover the Isle of Curia, Muria, and Avedalcuria, at the sight whereof we thought ourselves quite lost, and without hope of life.

Whereupon, to decline the danger, we turned the prow of our vessel to the

south-east, knowing no other means than that to avoid shipwreck. But by good fortune for us it pleased God that we let fall an anchor at the point of the Island of Socotora. There we presently anchored, a league below the place, where Don Francisco d'Almeyda caused a fortress to be built in the year 1507. When he came from Portugal, as the first Viceroy that ever was in the Indies.

Here we took in fresh water, and some provisions that we bought of the Christians of the country, which are the descendants of those whom the Apostle St. Thomas converted in those parts. Being refreshed there, we parted from thence, purposing to enter the Straits, so that after we had sailed nine days with a favourable wind, we found ourselves right against Mazua. There, about sunset we descried a sail at sea, whereunto we gave so hard chase, that before the first watch of the night we came up close to her, and then, to satisfy the desire we had to learn something of the captain by gentleness, touching the Turkish army, we demanded of him whether it was parted from Suez, or whether he had not met with it in any place; and that we might be the better informed, we spake aloud to all those that were in the ship.

But instead of answer, without speaking a word, and in contempt of us, they gave us twelve pieces of ordnance, whereof five were small, and the other seven field pieces, together with good store of musket-shot; and withal, in a kind of jollity, and as it were believing that we were already theirs, they made all the air about resound again with their confused cries. After this, to brave and terrify us the more, they flourished many flags and streamers up and down, and from the top of the poop they brandished a number of naked scimitars, commanding us with great threats to come aboard and yield ourselves unto them.

At the first view of so many rodomontades and bravings we were in some doubt and amaze, which caused the captains of our foists to call the soldiers to counsel to know what they should do, and the conclusion was to continue shooting at them till the next morning, so that by daylight they might be the better fought withal and invested, it being agreed on all sides that they were not to be let go unpunished for their presumption, which accordingly was performed, and all the rest of the night we gave them chase, plying them with our ordnance.

So morning came, their ship being shot through and through in many places, and cruelly battered all over, they rendered themselves into our hands. In the encounter there were sixty-four of their men killed, and of eighty that remained, the most part feeling themselves reduced to extremity, cast themselves into the sea, choosing rather there to be drowned than to be burnt in their ship with the artificial fires that we had hurled into her; so that of all the fourscore there escaped but five, very much hurt, whereof one was the captain.

This same captain, by force of torture, whereunto he was exposed by the command of our two captains, confessed that he came from Judea, and that the Turkish army was already departed from Suez, with a design to take in Adem, and then to build a fortress there before they attempted anything in the Indies, according to an express charge sent by the great Turk from Constantinople to the Bassa of Grand Cairo, who was going to be general of the army.

Besides this, he confessed many other things conformable to our desire, amongst the which he said that he was a renegado Christian, a Maliorquin by nation, born at Cerdenha, and son to one named Paul Andrez, a merchant of that island, and that about four years before, growing enamoured of a very fair Greekish Muhommadan, that was then his wife, for the love of her he had abjured Christianity, and embraced the law of Mahomet.

Our captain, much amazed thereat, gently persuaded him to quit this abominable belief, and become a Christian again; whereunto the wicked caitiff made answer with a brutish obstinacy, that at no hand would he yield to forsake his Law, showing himself so hardened in the resolution to continue therein, as if he had been born in it, and never had professed any other.

By these speeches of his, the captain, perceiving there was no hope of recalling him from his damnable error, caused him to be bound hand and foot, and so with a great stone tied about his neck to be cast alive into the sea, sending him to participate with the torment of this Mahomet, and to be his companion in the other world, as he had been his confidant in this.

This infidel being executed in this sort, we put the other prisoners into one of our foists, and then sunk their vessel, with all the goods that were in her, which consisted most in packs of stained cloth, whereof we had no use, and a few pieces of camlet that the soldiers got to make them apparel.

(*To be continued.*)

THE WONDERS OF ASTRONOMY.

THE earth is a grain of the seed which the Divine Sower has thrown into the field of the sun to germinate in space, flower, and fructify. For a long time the pride of man exaggerated the part the earth played in the universe: he was obstinate in his endeavours to make the centre of the starry world. The sun, moon, planets, and stars, were in his estimation only secondary bodies, constrained by a divine law to pass eternally before the throne of the immoveable earth, to delight the eye of its inhabitants, to illuminate its days, and lighten its nights with a lesser light. But nothing is less true than this romance invented by human vanity. The earth occupies only an inferior place in the solar world: it is only one among numerous planets which gravitate round the sun. It is even far from being the largest of these stars: for there are planets whose mass far exceeds that of our earth.

We have called the earth a *planet;* it is important to understand what is meant by this term.

The word *planet* signifies *wandering,* or vagabond. The planets are stars which move incessantly round the sun, the central star of our world. The sun retains the planets by its attraction, almost like a rider, who, standing in the centre of a circus, holds a horse by long reins while it is galloping round the circle. This is doubtless a very unscientific way of describing attraction, but nevertheless it has the merit of giving an idea of the manner in which the sun

exercises its action upon the earth, which revolves around this central star by accomplishing a complete circle in the space of a year. Only, while the reins of the rider consist of a material and visible bond of connection, attraction is an invisible bond of a mysterious and unknown nature, which is evident only by its effects, like the attraction which an electric body exercises upon lighter bodies. The attractive power of the sun suffices to compel the terrestrial globe to trace a constant and regular orbit round that star.

The planets must be distinguished from stars. Although these stars are confounded together upon the celestial vault, in consequence of their dimensions and brilliancy being so nearly alike, yet there is a wide difference between the functions of the stars and planets. A *star* is nothing less than a sun which shines like our sun, with a light of its own: it owes its brilliancy and splendour only to the fires it emits of itself. Therefore the fixed stars are luminous centres of worlds similar to our solar system, while the planets are only secondary stars which revolve round our sun. Our earth is one of these planets, with a velocity sixty times greater than that of a cannon ball; and this same cannon ball, if fired from the surface of the earth, would be ten years in reaching the sun, were it possible for it to do so. Sound, which travels at the rate of 1150 feet per second, would take fifteen years in traversing the same distance, while it would be only eight minutes in travelling from the sun to the earth.

Like many other planets, the earth is escorted by a *satellite*, a name given to certain celestial bodies, attached to large stars as invariable companions, following them in their eternal course. Saturn and Uranus have eight satellites; Jupiter four. The earth, a planet of minor importance, has only one satellite—the moon.

The distance of the moon from the earth is four hundred times less than that of the earth from the sun. In size the earth is fifty times larger than the moon.

To a spectator placed in the sun, or on any other fixed star, the earth would appear merely as a brilliant point in the sky, a star among other stars.

To an inhabitant of the moon—to a *selenite*—the earth would appear under the form of a luminous disc, forty times larger than the moon's disc appears to us and always *occupying the same position in the sky;* while the sun and the stars pass slowly before it. The inhabitant of the moon would see the earth suspended in the firmament, like an immense clock-face, the daily rotation of which would mark for him the twenty-four hours. The *phases of the earth* would mark the months for the *selenite*. Our engraving represents the earth as seen from the moon.—*See Frontispiece.*

DR. WICHERN AND HIS PUPILS.

"WOULD you like to spend a day at Horn and visit the *Rauhe Haus*," inquired my friend Herr X. of me, one evening, as we sat on the bank of the Inner Alster, in the city of Hamburg. I had already visited most of the "lions" in and about Hamburg, and had found in Herr X. a most intelligent and obliging cicerone. So I said, "Yes," without

hesitation, though knowing little more of the Rauhe Haus than that it was a reform school of some kind.

"I will call for you in the morning," said my friend, as we parted for the night.

The morning was clear and bright, and I had hardly despatched my breakfast when Herr X. appeared with his carriage. Entering it without delay, we were driven swiftly over the pavements till we came to the old city wall, now forming a fine drive, when my friend, turning to the coachman, said—

"Go more slowly."

"The scenery in this vicinity we Hamburgers think very beautiful," he continued, turning to me.

To my eye, accustomed to our hills, it was much too flat to merit the appellation of beautiful, though Art had done what it could to improve upon Nature; so I assented to his encomiums upon the landscape, but, desirous of changing the subject, added—

"This Rauhe Haus, where we are going, I know but little of; will you give me its history?"

"Most willingly," he replied, "You must know that our immense commerce, while it affords ample occupation for the enterprising and industrious, draws hither also a large proportion of the idle, depraved, and vicious. For many years, it was one of the most difficult questions with which our Senate has had to grapple, to determine what should be done with the hordes of vagrant children who swarmed about our quays, and were harboured in the filthy dens which, before the great fire of 1842, were so abundant in the narrow streets. These children were ready for crime of every description, and in audacity and hardihood far surpassed older vagabonds.

"In 1830, Dr. Wichern, then a young man of twenty-two, having completed his theological studies at Göttinghen and Berlin, returned home, and began to devote himself to the religious instruction of the poor. He established Sabbath schools for these children, visited their parents at their homes, and sought to bring them under better influences. He succeeded in collecting some three or four hundred of them in his Sabbath schools; but he soon became convinced that they must be removed from the evil influences to which they were subjected, before any improvement could be hoped for in their morals. In 1832, he proposed to a few friends, who had become interested in his labours, the establishment of a House of Rescue for them. The suggestion met their approval; but whence the means for founding such an institution were to come none of them knew; their own resources were exceedingly limited, and they had no wealthy friends to assist them.

"About this time a gentleman, with whom he was but slightly acquainted brought him 300 dollars, desiring that it should be expended in aid of some new charitable institution. Soon after, a legacy of 17,500 dollars was left for founding a House of Rescue. Thus encouraged, Wichern and his friend went forward. A cottage, roughly built and thatched with straw, with a few acres of land, was for sale at Horn, about four miles from the city, and its situation pleasing them, they appropriated their legacy to the purchase of it.

Hither, in November 1833, Dr. Wichern removed with his mother, and took into his household, adopting them as his own children, three of the worst boys he could find in Hamburg. In the course of a few months he had increased the number to twelve; all selected from the most degraded children of the City.

"His plan was the result of careful study and mature deliberation. He saw that these depraved and vicious children had never been brought under the influence of a well-ordered family, and, believing that in the organisation of the family, God had intended it as the best and most efficient institution for training children in the ways of morality and purity, he proposed to follow the Divine example. The children were employed at first in improving the grounds, which had hitherto been left without much care; the banks of a little stream, which flowed past the cottage, were planted with trees; a fish-pond into which it discharged its waters was transformed into a pretty sylvan lake; and the barren and unproductive soil, by judicious cultivation, was brought into a fertile condition.

"In 1834, the numerous applications he received, and the desire of extending the usefulness of the institution, led him to erect another building for the accommodation of a second family of boys. The work upon it was almost wholly performed by his first pupils. I should have remarked that, during the first year, a high fence, which surrounded the premises when they were purchased, was removed by the boys, by Dr. Wichern's direction, as he desired to have *love* the only bond by which to retain them in his family. When the new house was finished and dedicated, the original family removed into it, and were placed under the charge of two young men from Switzerland, named Baumgärtner and Byckmeyer.

"Workshops for the employment of the boys soon became necessary, and means were contributed for their erection. New pupils were offered, either by their parents or by the city authorities, and new families were organized, These required more "house-fathers," as they were called; and for their training a separate house was needed. Dr. Wichern has been very successful in obtaining assistants of the right description. They are young men of good education, generally versed in some mechanical employment, and whose zeal for philanthropic efforts leads them to place themselves under training here for three or four years, without salary. They are greatly in demand all over Germany, for home missionaries and superintendents of prisons and reformatory institutions. You have heard, I presume, of the Inner Mission?"

I assented, and he continued.

"These young men are its most active promoters. The philanthropy of Wichern was not satisfied, until he had established also several families of vagrant girls at his Rough House. But see, we are approaching our destination. This is the Rauhe House."

As he spoke, our carriage stopped. We alighted, and rarely has my eye been greeted by a pleasanter scene. The grounds, comprising about thirty-two acres, presented the appearance of a large landscape garden. The variety of choice forest trees was very great, and mingled with them were an abundance

of fruit trees, now laden with their golden treasures, and a profusion of flowers of all hues. Two small lakes, whose borders were fringed with the willow, the weeping elm, and the alder, glittered in the sunlight,—their finny inhabitants occassionally leaping in the air, in joyous sport. Fourteen buildings were scattered over the demesne,—one, by its spire, seeming to be devoted to purposes of worship.

"Let us go to the *Mutter Haus,*" (Mother House,) said my friend; "we shall probably find Dr. Wichern there."

So saying, he led the way to a plain neat building, situated nearly centrally, though in the anterior portion of the grounds. This is Dr. Wichern's private residence, and here he receives reports from the Brothers, as the assistants are called, and gives advice to the pupils. We were ushered into the superintendent's office, and found him a fine noble-looking man, with a clear mild eye, and an expression of great decision and energy. My friend introduced me, and Dr. Wichern welcomed us both with great cordiality.

"Be seated for a moment, gentlemen," said he, "I am just finishing the proofs of our *Fliegende Blatter.*" (Flying Leaves, a periodical published at the Rauhe Haus,) "and will presently show you through our buildings."

We waited accordingly, interested ourselves, meanwhile, with the portraits of benefactors of the institution which decorated the walls.

In a few minutes Dr. Wichern rose, and merely saying, "I am at your service, gentlemen," led the way to the original Rough House. It is situated in the south-eastern corner of the grounds, and is overshadowed by one of the noblest chestnut-trees I have ever seen. The building is old and very humble in appearance, but of considerable size. In addition to accommodation for the House-father, and his family of twelve boys, several of the Brothers of the Mission reside here, and there are also rooms for a probationary department for men pupils.

"Here," said the doctor, "we began the experiment, whose results you see around you. When, with my mother and sister and three of the worst boys to be found in Hamburg, I removed to this house in 1833, there was need of strong faith to foresee the results which God has wrought since that day."

"What were the means you found most successful in bringing these turbulent and intractable spirits into subjection?" I inquired.

"Love, the affection of a parent for his children," was the reply. "These wild hardened boys were inaccessible to any emotion of fear; they had never been treated with kindness or tenderness; and when they found that there was no opportunity for the exercise of the defiant spirit they had summoned to their aid, when they were told that all the past of their lives was to be forgotten and never brought up against them, and that here, away from temptation, they might enter upon a new life, their sullen and intractable natures yeilded, and they became almost immediately docile and amiable."

"But" I asked, "is there not danger, that, when removed from these comfortable homes, and subjected again to the iron gripe of poverty, they will resume their old habits?"

"None of us know," replied the doctor, solemnly, "what we may be left to do in the hour of temptation; but the danger is, nevertheless, not so great as you think. Our children are fed and clothed like other peasant children; they are not encouraged to hope for distinction, or an elevated position in society; they are taught that poverty is not in itself an evil, but if borne in the right spirit, may be a blessing. Our instruction is adapted to the same end; we do not instruct them in studies above their rank in life; reading, writing, the elementary principles of arithmetic, geography, some of the natural sciences, and music, comprise the course of study. In the calling they select, we do what we can to make them intelligent and competent. Our boys are much sought for as apprentices by the farmers and artisans of the vicinity."

"Many of them I suppose," said I, "had been guilty of petty thefts before coming here; do you not find trouble from that propensity?"

"Very seldom; the perfect freedom from suspicion, and the confidence in each other, which we have always maintained, make theft so mean a vice, that no boy who has a spark of honour left will be guilty of it. In the few instances which do occur, the moral sense of the family is so strong, that the offender is entirely subdued by it. An incident illustrative of this, occurs to me. Early in our history, a number of our boys undertook to erect a hut for some purpose. It was more than half completed, and they were delighted with the idea of being able soon to occupy it, when it was discovered that a single piece of timber, contributed by one of the boys, had been obtained without leave. As soon as this was known, one of the boys seized an axe and demolished the building, in the presence of the offender, the rest looking on and approving; nor could they afterward be induced to go on with it. At one time, several years since, there were two or three petty thefts committed, (and a good deal of prevarication naturally followed,) mainly by new pupils, of whom a considerable number had been admitted at once. Finding ordinary reproof unavailing, I announced that family worship would be suspended till the delinquents gave evidence of penitence. The effect of this measure was far beyond any expectation. Many of the boys would meet in little groups, in the huts, for prayers among themselves; and ere long the offenders came humbly suing for pardon and the resumption of worship.

During this conversation, we had left the Rough House and visited the new lodge, erected in 1853, for a family of boys and a circle of brothers, and the "Beehive" (*Bienenkorb,*) erected in 1841, in the north-east corner of the grounds, the house of another family. Turning westward, we came to the chapel, and a group of buildings connected with it, including the schoolrooms, the preparatory department for girls, the library, dwellings for two families of girls, the kitchen, store-rooms, and offices.

It was the hour of recess, and from the schoolrooms rushed forth a joyous company of children, plainly clad, and evidently belonging to the peasant class; but though the marks of an early career of vice were stamped on many of their countenances, yet there were not a few bright eyes, and intelligent, thoughtful faces. Seeing Dr. Wichern, they came at once to him,

with the impulsiveness of childhood, but with so evident a sense of propriety and decorum, that I could not but compare their conduct with that of many pupils in our best schools, and not to the advantage of the latter. The Doctor received them cordially, and had a kind word for each, generally in reference to their improvement in behaviour, or their influence over others.

"This," said he, turning to me, as a bright, blue-eyed, flaxen-haired boy seized his hand, "is one of our peace boys."

I did not understand what he meant by the term, and said so.

"Our peace boys," he replied, "are selected from the most trustworthy and exemplary of our pupils, to aid in superintending the others. They have no authority to command, or even to reprove; but only to counsel and remind. To be selected for this duty is one of their highest rewards."

"There must be among so many boys," I remarked, "and particularly those taken from such sources, a considerable number of *born-destructives*,—children in whom the propensity to break, tear, and destroy is almost ineradicable; how do you manage these?"

"In the earlier days of our experiment," he replied, "we had much trouble from this source; but at last we hit upon the plan of allowing each boy a certain sum of pocket-money, and deducting from this, in part at least, the estimated value of whatever he destroyed. From the day this rule was adopted, all destructible articles seemed to have lost a great part of their fragility."

"Do the pupils often run away?" I asked.

"Very seldom, of late years; formerly we were occasionally troubled in that way. It was, of course, easy for them to do it, as no fences or other method of restraint were used,—our reliance being upon affection, to retain them. If they made their escape, we usually sought them out, and persuaded them to return, and they seldom repeated the offence. Some years ago, one of our boys, who had repeatedly tried our patience by his waywardness, ran away. I pursued him, found him, and persuaded him to return. It was Christmas eve when we arrived home, and this festival was always celebrated in my mother's chamber. As we entered the room, the children were singing the Christmas hymns. As he appeared, they manifested strong disapprobation of his conduct. They were told that they might decide among themselves how he should be punished. They consulted together quietly for a few moments and then one, who had himself been forgiven some time before for a like fault, came forward, and, bursting into tears, pleaded that the offender might be pardoned. The rest joined in the petition, and, extending to him the hand of fellowship, soon turned their festival into a season of rejoicing over the returned prodigal. The pardon thus accorded was complete; no subsequent reference was made to his misconduct; and the next day, to show our confidence in him, a confidence which we never had occasion to retract, we sent him on an errand to a considerable distance."

"How did they behave at the time of the great fire?" I inquired; "the excitement must surely have reached you."

"No event in our whole history," answered Dr. Wichern, his fine coun-

tenance lighting up as he spoke, "so fully satisfied me of the success which had attended our labours as their behaviour on that occasion. On the second day of the fire the boys, some of whom had relatives and friends in the burning district, became so much excited by the intelligence brought by those who had escaped from the flames, that they began to implore me to permit them to go and render assistance. I feared, at first, the consequences of exposing them to the temptations to escape and plunder, by which they would be beset; but at length permitted a company of twenty-two to go with me, on condition that they would keep together as much as possible, and return with me at an appointed time. They promised to do this, and they fulfilled their promise to the letter. Their conduct was in the highest degree heroic; they rushed into danger, for the sake of preserving lives and property, with a coolness and bravery which put to shame the labours of the boldest firemen. Occasionally they would come to the place of rendezvous to reassure their teachers, and then in a moment they were away again, labouring as zealously as ever, and utterly refusing any compensation, however urgently pressed upon them. When they returned home another band was sent out under the direction of one of the house-fathers, and exerted themselves as faithfully as their predecessors had done. But their sacrifices and toils did not end here. Among the thousands whom that fearful conflagration had left homeless, not a few came here for shelter and food. With these our boys shared their meals, and gave up to them their beds, themselves sleeping upon the ground, and this for months."

I could not wonder at the enthusiasm of the good man over such deeds as these on the part of boys whom he had rescued from a degradation of which we can hardly form an idea. It was a triumph of which an angel might have been proud.

I was desirous of learning something of the industrial occupations of the pupils, and made some inquiries respecting them.

"A considerable portion of our boys," said Dr. Wichern, "are engaged in agricultural, or rather, horticultural pursuits. As we practice spade husbandry almost exclusively, and devote our grounds to gardening purposes, we can furnish employment to a great number. For those who prefer mechanical pursuits, we have a printing-office, book-binding, stereotype-foundry, lithographing and wood-engraving establishments, paint-shop, silk-weaving manufactory, and shoe-shop, as well as those trades which are carried on for the most part out of doors, such as masonry and carpentry. The girls are mostly employed in household duties, and are in great demand as servants and assistants in the households of our farmers."

Passing westward, we came next to the bakery and the farmer's residence, catching a glimpse through the trees of the Fisherman's Hut, at a little distance, near the bank of the larger of the two sylvan lakes on the premises, where another family are gathered, and then approached a large building of more pretension than the rest.

"This," said Dr. Wichern, "is the home of the Brothers of our Inner Mission, and the school-room for our boarding-school boys, the children of

respectable and often wealthy parents, who have proved intractable at home."

"What," I asked, "do you include in the term, Inner Mission?"

"I must take a round-about method of answering your inquiry. When we found it necessary to form new families, our greatest difficulty was in procuring suitable persons to become house-fathers of these families. It was easy enough to obtain honest, intelligent men and women, who possessed a fair education and a sufficient knowledge of some of the mechanic arts for the situation; but we felt that much more than this was necessary. We wanted men and women who would act a parent's part and perform a parent's duty to the children under their care; and these, we found, must be trained for the place. We then began our circles of brothers, to furnish home-fathers and assistants for our families. We required in the candidates for this office an irreproachable character; that they should be free from physical defect, of good health and robust constitution; that they should give evidence of piety and of special adaptation to this calling; that they should understand farming or some one of the trades practised in the establishment, or possess sufficient mechanical talent to acquire a knowledge of them readily; that they should have already a certain amount of education, and an amiable and teachable disposition; and that they should be not under twenty years of age, and exempt from military service."

"And do you find a sufficient number who can fulfil conditions so strict," I inquired.

"Candidates are never wanting," was his reply, "though the demand for their services is large."

"What is your course of training?"

"Mainly practical, though we have a course of special instruction for them, occupying twenty hours a week, in which, during their four years' residence with us, they are taught sacred and profane history, German, English, geography, vocal and instrumental music, and the science of teaching. Instruction on religious subjects is also given throughout the course. For the purpose of practical training, they are attached, at first, to families as assistants, and after a period of apprenticeship they undertake in rotation the direction. They teach the elementary classes, visit the parents of the children, and report to them the progress which their pupils have made; maintain a watchful supervision over them after they leave the Rauhe Haus; and assist in religious instruction and in the correspondence. By the system of monthly rotation we have adopted, each brother is brought in contact with all the pupils, and is thus enabled to avail himself of the experience acquired in each family."

"You spoke of a great demand for their services; I can easily imagine that men so trained should be in demand; but what are the callings they pursue after leaving you? for you need but a limited number as house-fathers and teachers."

"The Inner Mission," he replied, "has a wide field of usefulness. It furnishes directors and house-fathers for reform schools organized on our plan,

of which there are a number in Germany; overseers, instructors, and assistants in agricultural and other schools; directors and subordinate officers for prisons; directors, overseers, and assistants in hospitals and infirmaries; city and home missionaries; and missionaries to colonies of emigrants in America."

"What is your annual expenditure above the products of your farm and workshops?" I asked.

"Somewhat less than 50 dollars a-head for our entire population," was the reply.

It was by this time high noon, and as we returned to the Mutter Haus, the benevolent superintendent insisted that we should remain and partake with him of the mid-day meal. We complied, and presently were summoned to the dining hall, when we found a small circle of the Brothers, and the two head teachers. After a brief and appropriated grace, we took our seat; being introduced by the director.

"At supper all our teachers assemble here," said Dr. Wichern, "and with them those children whose birthday it is; but at dinner the Brothers remain with their own families."

The table was abundantly supplied with plain but wholesome food, and the cheerful conversation which ensued gave evidence that the cares of their position had not excited a depressing influence on their spirits. Each seemed thoroughly in love with his work, and in harmony with all the rest.

"Have you," inquired one of the Brothers, "any institution like this in your country?"

"We have," I answered, "Reform Schools, Houses of Refuge, Juvenile Asylums, and other reformatory institutions; but I am afraid I must say, nothing like this. We are making progress, however, in Juvenile Reform, and I hope that ere long that we, too, may have a Rough House whose influence shall pervade our island, as yours has done Central Europe."

"Dr. Wichern," inquired of another, "have our friends visited the 'God's Acre?'" (the German name of a grave-yard.)

"Not yet," was the reply; "but I will go hither with them after we have dined, if they can remain so long."

We assented, and one of the brothers remarked,—

"Our boys have taken especial pains to beautify that favorite spot, this season."

"It is becoming popular in your country, I believe," said our host courteously.

Dr. Wichern thought the neglect of the earthly home of the dead resulted from the prevalence of and indifference to the glorious doctrine of the Resurrection; and whatever a people might profess, he could not but believe them infidel at heart, if they were entirely neglectful of the resting-place of their dead.

The close of our repast precluded further discussion, and at our host's invitation we accompanied him to the rural cemetery, where such of the pupils and brothers as died during their connexion with the school were buried.

A popular writer has very appropriately called Rauhe Haus a "Home among the flowers;" but the title is far more appropriate to this beautiful spot. Whatever a pure and exquisite taste could conceive as becoming in a place consecrated to such a purpose, willing hands have executed; and early every sabbath morning, Dr. Wichern says, the pupils resort hither to see that everything necessary is done to keep it in perfect order. The air seemed almost heavy with the perfume of flowers; and though the home of the living pupils of the Rauhe Haus is plain in the extreme, the palace of their dead surpasses in splendour that of the proudest of earthly monarchs. One could hardly help coveting such a resting-place.

It was with reluctance that we at last turned our faces homeward, and bade the excellent director farewell. The world has seen, in this nineteenth century, few nobler spirits than his. Possessed of uncommon intellect, he combines with it executive talent of no ordinary character, and a capacity for labour which seems almost fabulous. His duties as the head of the Inner Mission, whose scope comprises the organization and management of reform institutions of all kinds throughout Germany, as well as efforts analagous to those of our city missions, temperance societies, &c., might well be supposed to be sufficient for one man: but these are supplementary to his labours as director of the Rauhe Haus, and editor of the *Fliegende Blatter*, and the other literature by no means inconsiderable, of the Inner Mission. Dr. Wichern is highly esteemed, and possesses almost unbounded influence throughout Germany; and that influence, potent as it is, even with the princes and crowned heads of the German States, is uniformly exerted in behalf of the poor, the unfortunate, the ignorant, and the degraded.

THE BROOK AND THE MEADOW.

"Just a little, a *very* little, a *very, very* little," said the Brook to the Bank

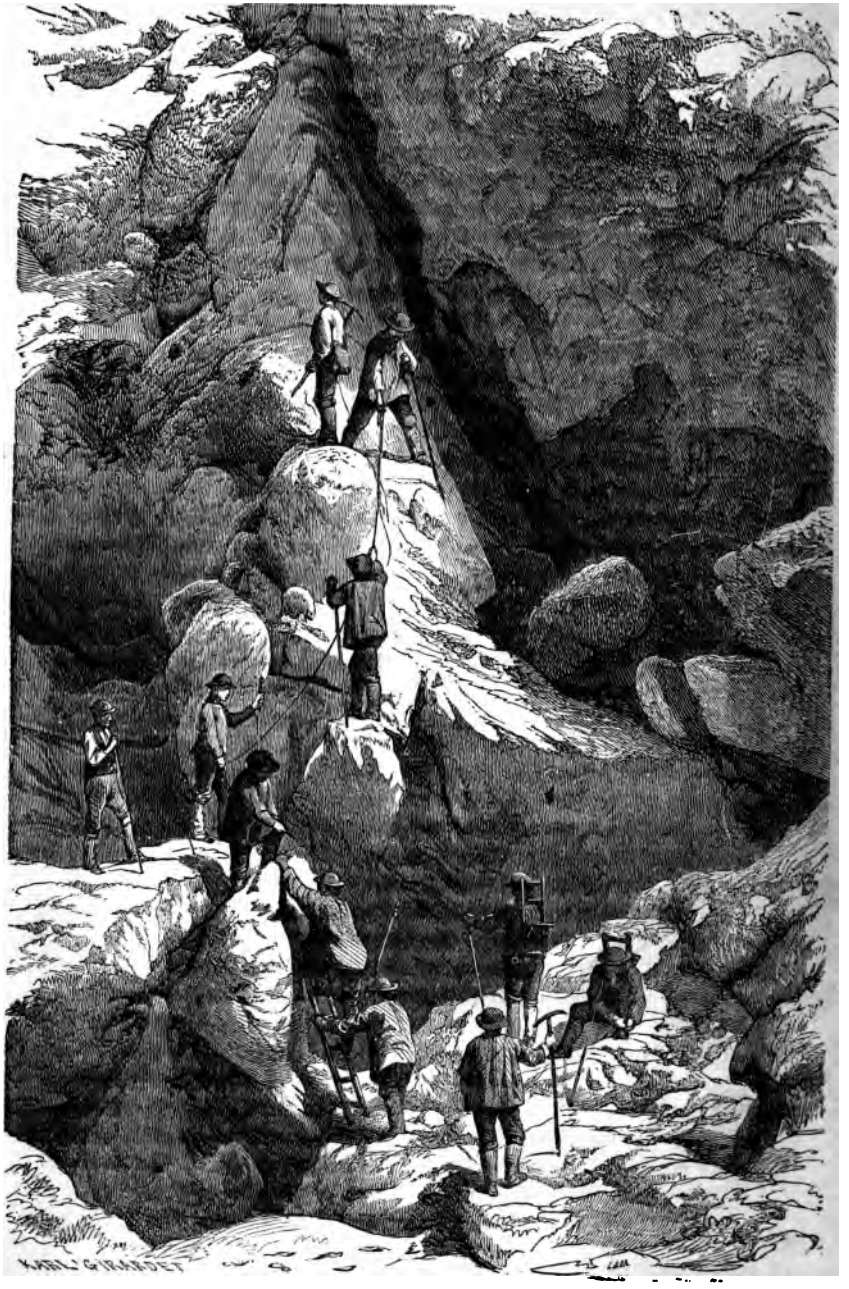
And the Bank was silent, and the Brook wore its side till the earth melted away and the sods floated down the stream.

"Just a little more, a very little more!" said the Brook again.

And the waters pressed against the roots of the willows that grew beyond the bank, and laid them bare.

"Just a little, *little* more," said the Brook again: and the widening stream advanced with fresh force, till one by one the willows fell and were borne away in the torrent.

"Alas!" cried the Meadow, as the water closed in on it, "if I had not neglected the attack on my bank, my fence would never have been destroyed; but now my protection is gone, and I am rightly served in being turned from a fruitful field into a watery waste."



TRAVELLERS ASCENDING MONT BLANC.



MONT BLANC.—DISASTER OF AUGUST 20TH, 1820.

MONT BLANC.

MONT Blanc is nearly 16,000 feet above the level of the sea, and is the highest mountain in Europe. No one previous to Horace Benedict de Saussure had conceived the bold thought of climbing to its lofty summit. It was supposed that man could not breathe there, on account of the rarefaction of the air, as experienced by aëronauts upon attaining great heights in balloons. Saussure was not twenty years old when he thought of attacking this giant of the Alps. During the first journey he made to Chamouni in 1760, this ardent young naturalist proclaimed throughout all the parishes of the valley, that he would liberally recompense any guide who would show him a practicable road to the top of Mont Blanc. He also offered to pay the expenses of those who tried unsuccessfully to find such a road. But his offers brought no result.

It was not until fifteen years afterwards, in 1775, that four guides of Chamouni attempted to reach Mont Blanc by the Côte mountain which rises above the village of Bossons. After overcoming the first obstacle presented by the glaciers and crevasses, the guides entered a large snow-valley, which appeared to lead directly to Mont Blanc. The weather was very favourable, the obstacles did not appear very formidable, and there was a fair prospect of success. But the rarefaction of the air, and the reflection of the sun from the dazzling mass of snow, fatigued the guides to the last degree. Succumbing to fatigue and exhaustion, they were obliged to redescend without having encountered any material obstacle.

After other fruitless attempts on the part of Saussure and others, the glory of first reaching the summit of Mont Blanc was acquired by Jacques Balmat, a guide, on the 8th of August, 1786. He was accompanied by Dr. Paccard. On the 1st of August, 1787, he ascended again, accompanied by Saussure and nineteen other persons, guides, and a servant. This was the first ascent undertaken with a scientific aim.

Saussure's success excited many other venturous persons to follow his example. Their attempts were unattended with a serious disaster. Not so, however, that undertaken by Dr. Hamel, a Russian savant who, in 1820, by orders of the Russian Government, attempted to scale the summit of the mountain for the purpose of making scientific observations on the physical condition of our globe.

Dr. Hamel's first attempt was made on the 3rd of August, but it was frustrated by a violent storm. On the 18th he made another attempt, in company with two English gentlemen, Mr. Dornford and Colonel Henderson, and a large party of guides.

Starting at six o'clock in the morning from Chamouni, they reached the Grands Mulcts at ten. This is the spot at which travellers usually pass the night, for the ascent is too arduous and fatiguing to be accomplished in one day. A portion of this rock is cut in the form of the letter L. A ladder and some sticks covered with canvas were arranged so as to form a kind of triangle, in the interior of which the travellers passed the night, lying on straw. But a storm arose

during the evening, and it began to rain, and it thundered during the whole night. The rain continued to fall all the next day, and afterwards it snowed, and the travellers had to pass another night under the miserable shelter of their tent.

Next morning the guides held a council, and, as prudence dictated, they decided to return to Chamouni; but when their decision was reported to Dr. Hamel, he formally rejected it. It was therefore decided that three of the guides should proceed to Chamouni to obtain a fresh supply of provisions.

It had been decided that the return of the guides should be awaited at the place of encampment. But upon the weather clearing off at eight o'clock, Dr. Hamel determined to proceed at once. The guides, who well knew all the dangers of such a journey immediately after a storm, over newly fallen snow, amid fearful precipices, refused to obey so imprudent an order. One of the guides shed tears; throwing himself into the arms of one of his comrades, he said, "I am a lost man. I shall perish!" This gloomy foreboding was verified, for this guide was one of the victims of the catastrophe that ensued. Colonel Henderson sided with the guides; but Dr. Hamel stamping his foot and looking the Colonel in the face, allowed the word *cowards* to escape from his lips. There was now no alternative for brave men. Every one made his preparations in silence, and they started on their perilous ascent. The first part of the journey was accomplished without accident. The weather had become very fine, and the party arrived at the great plain at the base of the mountain.

"Here," said Dr. Hamel, "our guides congratulated us, and said that all difficulties were really overcome: no crevasses, no danger. Never had they a more successful ascent. Never had any one ascended so quickly or with less difficulty: for the snow had just that consistency adapted for walking upon it easily; it was neither too soft nor too hard. No one was indisposed, although somewhat inconvenienced by the rarity of the atmosphere, and extreme thirst. Our guides recommended us to take breakfast, for higher up we should have no appetite. We took their advice, and each of us ate his half of a chicken with a relish. We kept a bottle of our best wine to drink on the summit to the memory of Saussure. At nine o'clock we resumed our journey to the summit, which we could see before us."

The party soon reached what the guides called the *calotte du Mount Blanc*: that is, the last slope of snow which leads to the extreme summit. At the foot of this talus is an immense crevasse of ice, over 70 feet in width and 170 feet in depth. The guides walked in single file, Dr. Hamel and the other travellers bringing up the rear.

It was this order of marching that probably caused the catastrophe.

By advancing in single file, they cut, as with a plough, the newly fallen snow, which had not yet become adherent to the old snow. Thus divided in a long section, the portion of snow below the party suddenly parted, and slipped over the old snow. The whole caravan was carried by this avalanche along the talus at the foot of which opened, as a gulf, the immense crevasse named above. The avalanche of snow which came away was over a 1000 yards long and 70 wide, and nearly a yard in thickness. The whole party were thrown down and rolled in the snow. The three guides who walked in front were thrown down the crevasse. Five

others, carried by a more violent impulse, had the good fortune to cross the abyss, and fall into another crevasse, happily of small depth, and half filled with snow, from which they were drawn out. By singular Providence, the other guides, the two English gentleman, and Dr. Hamel, stopped on the brink of the gulf. They had rolled down a height of 100 yards.

Two of the guides remained in a state of unconsciousness, one was tightly wedged in between the narrow sides of the crevasse; the other was buried to the chin in the snow: he could move neither hand nor foot, and was black in the face from suffocation; he called his companion to his assistance in a scarcely audible voice, who, having succeeded in releasing himself, removed the snow that buried the body of his comrade by the aid of his staff. The two mountaineers remained silently looking at each other for several minutes: they imagined that they were the only survivors of this horrible fall.

Happily this was not the case: several of their comrades escaped the avalanche as by a miracle, holding on to the edges of the crevasse which had nearly proved their grave. One of them even allowed himself to slide along the sides. An axe was thrown to him, with which he cut steps in the ice, and when he came within reach of the others, they held out a staff for him to take hold of and drew him up.

All the party were now gathered together, and they proceeded to count heads, to see how many were missing; three guides, who had all fallen down the great crevasse: they had been seen falling by one of the survivors.

Dr. Hamel was overwelmed with grief and sorrow, no words can paint the grief of the two English gentlemen: their reason seemed to desert them. They threw themselves down on the snow, declaring that they would not quit the place until the three unfortunate guides, whose death they accused themselves with being the cause of, were found.

In spite of the remonstrances of the guides, Mr. Dornford and Dr. Hamel, went down into the great crevasse, their bodies half buried in the soft snow. They sounded in every direction with their alpenstocks, but without encountering any resisting body. They called the guides by their names as loudly as they could, but at these extraordinary heights, the highly rarefied air produces only very feeble sounds.

Concluding that the guides were buried under a thick mass of snow, Dr. Hamel plunged his alpenstock its whole length into the snow, then lying down, he took the stick between his teeth, and listened attentively. But no reply: nothing disturbed the silence of this gloomy tomb.

The search was at length given up as hopeless. Dr. Hamel and his companion remounted the plateau. The unfortunate guides must have been buried beneath at least 60 feet of snow. There was no alternative but to abandon them; and from that time, every traveller who attempts to ascend Mont Blanc breathes a sigh as he passes this spot where three of the inhabitants of the valley perished. Their remains were discovered in August 1861 and in July 1863.

As the day advanced, it became icy cold, for they were nearly on the summit of Mont Blanc. Two hours had been vainly employed in searching the great crevasse: it was absolutely necessary to descend, for if overtaken by night amid

these precipices, the travellers ran the risk of being all frozen. Mathieu Balemat, the guide, then approached Dr. Hamel, and looking him in the face as the doctor had looked in his on the morning of the fatal day.—"Well Sir," said he, "are we cowards? Must we go up still?" The doctor replied by giving orders to descend. He would have been glad if some of the guides had been willing to pass the night on the edge of the crevasse, to await the resources they expected from Chamouni. This was, perhaps, to devote them to certain death. So the idea was received by the guides with anger and reproaches: the stranger having, by his obstinacy, caused the death of their comrades.

On their road back, each one related the sensation they had experienced at the moment of the fall of the avalanche nearly a mile long. One of the guides had rolled over three times before being carried over the great crevasse into the little one. He attributed his safety to the long leather band of the doctor's barometer case which he carried, by which he was held suspended for a moment over the great abyss, from whence he rebounded into the second crevasse. Another had seen four of the five guides who preceded him fall with their feet in the air, one only was not overthrown and remained standing. As for himself, he had felt himself carried away as swiftly as though shot from a cannon, and in the twinkling of an eye, lying half buried in a bed of snow. A second afterwards another of his companions fell through the air (from the sky) beside him.

The only one among the guides who had not been carried away by the avalanche, was Mathieu Balemat. Guessing what had happened, and comprehending with the instinct of a mountaineer that the new snow had detached itself from the old, and slid in one sheet upon the talus: endowed besides, with prodigious strength, he thrust his long alpenstock through the new snow, which was but a yard in thickness, and buried it in the old and resistant snow. By this means, he could remain suspended as it were, by his staff, by the strength of his hands, while the avalanche carried his comrades and brother under him. His brother was found dead at the bottom of the abyss.

Overthrown and rolled down like the others, Dr. Hamel fortunately found himself stopped on the edge of the great crevasse. Colonel Henderson was thrown much nearer to the edge of the same abyss; he had been stayed only by the mass of snow surrounding it, in which he was completely buried up to his head, and from which he was drawn out only with great difficulty.

Upon arriving at the Grand Mulets, they met the three guides who had been sent in the morning to fetch provisions. They turned back and redescended with the rest of their comrades. All these brave mountaineers, struck with a sort of stupor, deplored with one voice the fate of their comrades, and the distress into which this event would plunge their families.

The two English gentlemen contributed liberally to the aid of the bereaved families, in which Dr. Hamel did not take any share. But nothing could console the mother of one of three victims, Pierre Balemat. She mourned, and would not be comforted: in three months she died.

The last episode in this sad history happened on the 15th of August, 1861. A guide of Chamouni found on the glacier des Bossons, two skulls with their integuments, and an arm with the hand adhering to it, the whole covered with

flesh. Fragments of bags, the stuff of a vest, &c., admitted of no doubt that these human remains had once belonged to Pierre Balemat and Pierre Carrier, two of the victims of the catastrophe of the 20th of August, 1820. Lastly, on the 1st of July 1863, the glacier des Bossons brought down other human remains: a foot, covered with flesh, and the nails still on the toes. Beside this foot was found a compass, probably belonging to Dr. Hamel, which Augustus Teiraz the guide had carried. And it was a grandson of Joseph Teiraz, a photographer of Chamouni, who happened to make this sad discovery.

INDEPENDENT JOHN.

ONE summer's afternoon, a boy about fifteen years old, but who looked much older and stronger, and bolder than boys usually do at that age, was seated on the pier at one of our sea-ports. He had been home to dinner, and was now awaiting the summons of the neighbouring school-bell to renew his studies.

With his elbow resting on a lot of books, bound together with a leather strap, and his legs dangling over the water, he amused himself by throwing stones into it, although he scarcely seemed to know what he was doing. He had a companion with him, a younger brother, as unlike him as possible: for he was pale, thin, and deformed, and looked much younger than he really was.

Henry was just a year younger than his brother John, but much inferior to him in strength, courage, and skill. He was accustomed to follow his advice in everything. Not that Henry was really so feeble as he at first sight appeared to be: his frail form, on the contrary, concealed a tenacious vitality and a vigour of inertia not often met with among the greatest: but his nature was imitative; doing what he was told was pleasanter to him than having to choose for himself. Besides, he was devotedly attached to his big brother, whom he greatly admired for his manly qualities, and took a pride in doing everything he told him, just as a soldier obeys his general.

Suddenly John started to his feet with an exclamation, and pointing to the harbour, he said,—

"Look, Harry, look! the training-ship is going out."

The ship he pointed at was weighing anchor, and unfurling her sails; the yards were manned by pupils of the naval school, and soon the ship was scudding over the waves like a sea-gull.

Assuredly one of the most interesting sights the eye can behold is a ship in full sail, with a favourable breeze, well manœuvred, with the Union Jack floating aloft. The most rapid and varied paces of the courser can give no idea of its prompt movements, coquettish air, and mute grace of obedience. A ship is not a machine of wood, canvas, and cordage, as may be supposed when seen lying at anchor in a harbour; it is a being animated with much intelligence, living many hundreds of lives, seeing and hearing, and speaking with her guns.

At this very moment the school-ship made her voice heard, leaving behind her a long cloud of white smoke. John took off his cap, and shouted, "Hurrah! Independence for ever!" but the sound of the school-bell soon put a stop to his glee.

"Silence that horrid bell!" cried the vexed school-boy, "it always rings when I don't want it. I wish old Squash had the bell tied round his neck."

"Old Squash," as the boy disrespectfully called him, was the worthy and intelligent schoolmaster, whose hair had become grey in the pursuit of his arduous vocation.

"Look!" said John, who could not take his eyes off the ship, "she luffs; they are going to tack ship. How pleasant it must be to cut through the waves in that way, brother Harry."

"If Old Squash was here now," said Harry, "he would prove that Virgil describes this manœuvre, and give us a Latin quotation."

"Don't mention Latin to me again," said John, sharply, "I hate it: it is my natural enemy. It is a great advantage to me, certainly, to understand Horace, and to know that the Romans preferred Venafra oil to lamprey sauce."

"But our uncle wishes us to study the classics," replied Henry, sighing.

"What right has our uncle to make us do things we don't want to do?" mumbled John. "Must we be slaves because we don't wear moustaches? I wish to be independent—I do."

"Independent;" that was John's favourite word when he was in a rebellious mood. When he was scolded for losing his pocket-handkerchiefs, or for tearing his trousers, or neglecting to learn his lessons, or for his extravagant appetite for his aunt's preserves, he always, after a short debate, concluded by wishing he was independent! Experience had not yet taught him the necessity for submission, and he regarded every kind of restraint as an attack upon his liberty. This desire to obey only his own wishes constantly brought him into trouble, and he had no peace or happiness of his life; but instead of attributing his unhappiness to his disobedience, he accused all who had authority over him of tyranny, and every fresh trouble or dispute excited him to "obtain his liberty."

His brother Henry, of a more peaceable disposition, made less difficulty in rendering obedience. He was a kind of careless Pylades running after his Orestes, in order not to be obliged to seek his way alone, sharing all his adventures without having to seek them, and also without fearing them.

When Henry heard his brother invoking his independence with respect to the Latin class, he understood that war was declared, so he laid the books he carried under his arm down on the parapet, and paused.

He had not long to wait. The school-bell ceased ringing. Then John, turning his head towards the school with a look of defiance, said, "Let them explain the eclogues, and scan the verses, if they like; I want some fresh air, Harry, and shall sit here and watch the training ship."

"They are going to exercise the guns, John," said Harry, with the utmost indifference."

"Old Squash may scold as much as he pleases," said John; "I care as much for his anger as I do for that of our old Tom cat; and as for our uncle, if he

locks us up, I shall carpet the floor of my room with the leaves of my Virgil, and give my *Conciones* to Mary, to wrap up her chickens in."

"You may give her mine, too," said Henry, quietly.

"Let us go down to the end of the pier," said John, "we can see better there; and when the ship has finished her evolutions, we can go and pick up some crabs to put in old Squash's pocket."

Henry, taking up his books by the strap, slung them over his shoulder, and quietly followed his brother to the end of the pier.

"Our fellows are busy with absolute ablatives now," said John, laughing; "but I don't much care for grammar, nor for old Squash either. Ah! there's no pleasure without liberty. We'll go and amuse ourselves like men, Harry."

"Amuse ourselves! Yes," said Henry, looking around him with indifference.

At this moment they met some half-a-dozen sailor boys. When they saw Henry they stopped and looked at him, laughing.

"That's a queer fish," said one.

"Don't you think he's a smuggler?" said another. "He's got a lot of tobacco under the back of his coat."

"Go along, you young scamps," said John, quite indignant at them for mocking his brother.

The boys stood still, looking impudently at him. At length the biggest of them marched up to John, boldly saying,—

"Which will you have, my fine gentleman, a black eye or a bloody nose?"

"Take that and try it," said John, giving the boy a hard blow in the face.

The sailor boy staggered under the blow, but soon recovering himself, made a vigorous attack on John, who gave him a warm reception. Henry was naturally disposed to go to his brother's assistance, but he was himself attacked by a couple of boys, and a general fight ensued. It was an unequal struggle, but the strength and skill of John rendered the victory for a long time uncertain. At length some passers by interfered, and drove the sailor boys away, and the brothers remained with their faces bruised and bleeding, their clothes torn, and their books trampled under foot in the dirt.

"This is a very pleasant game, to be sure?" said Harry, rubbing his bruised arm, with a wry face, "why did you not let the boys alone, John, you began the fight."

"What business had they to mock and insult you?" said John, exasperated. "What business is it of theirs if you are a little humpbacked. When I see them again I'll serve them out. I shall not allow them to tyrannize over us. I wish to be independent."

Poor Harry very well knew that he could make no reply to that speech. So he proceeded to wipe the mud off his clothes, and to wash his classics in a pool of water.

John helped his brother to put the leaves together, and they proceeded on their way: by the time they had reached the sea-shore the ship had returned to her anchorage, the tide was out, and the crabs all gone. After searching a long time in vain, they were compelled to return home without having enjoyed any of the pleasures they had promised themselves.

Upon reaching home, the boys' appearance, all bruised and torn, quite shocked their aunt, who desired to know how their disaster had occurred. John was sincere; told everything without reserve, but without expressing any regret at what had happened. His uncle, who had quietly stood by listening to John's story, declared that the boys should never be trusted again to go to school unattended by a servant, and that as a punishment for playing truant, they should not be allowed to play for a week. But as their uncle had invited some friends to dine with him that day, he told the boys to go and wash themselves and change their clothes.

When the boys made their appearance in the dining room, they found the company assembled, and as all eyes were directed upon them, while a mocking smile played on most of their faces, they readily understood that they had been informed of the scrape they had fallen into.

Among the guests was Captain Lowell, of the training ship *Perseverance*, which was soon to set out on an exploring voyage. Taking John playfully by the ear, he said, laughing:—

"It is you, is it, who have been fighting with Her Majesty's sailor boys. You, so fond of independence, ought to ask your uncle to allow you to come on board my ship."

"I have asked him many times," replied John boldly, "but my uncle says that none but ignorant and unruly persons wish to become sailors."

"Did he say that?" said Captain Lowell.

"It is only his foolish talk," said the uncle, embarrassed.

"Harry can tell you if it be true or not," said John.

"It is the truth?" replied the youngster.

Captain Lowell appeared quite offended; but after a moment, he burst out laughing.

"Aha!" said he, "I suppose lawyers have no better opinion of sailors than sailors have of lawyers. But it is all right; let every one stand up for his own flag. But if it should happen that you find this young gentleman qualified by his vices and ignorance to become a sailor, send him to me, and I will take charge of his naval education."

Dinner being now announced, the conversation was broken up, and when the company were seated at the table, they found something more interesting to talk about.

Captain Lowell had sailed all over the world, and had seen many strange and marvellous things, which he described in a very lively and amusing manner; especially the terrible and comical adventures in which he had figured as hero. John listened with both his ears; he held his breath in fear and suspense, and almost split his sides with laughter. He quite forgot to eat his dinner.

In the evening when he found himself alone with his brother, he could talk of nothing but of the pleasure of roaming abroad, "free and independent" and of the resolution he had taken to seize the first opportunity of setting out in search of adventures. Little Harry was very drowsy, and approved of everything his brother said, so that he might get to sleep.

Their uncle did not forget to inflict the punishment he had threatened. Next day they were confined to their rooms until the school opened, when they were

escorted by a servant, much to John's humiliation. At school they had to take their places at the botton of their class.

Six days their punishment continued with strict severity. After the seventh, they were again to be free as before. On that day a bright sun shone into their room, and the saucy sparrows chattered round the chimneys and roof. John, with his face pressing against the window-panes, looked at the bit of blue sky visible above the opposite roof, and was quite angry to think that so fine a day should be lost to him.

After a long silence, during which his desires and his anger continued to increase, he struck the window-pane a blow with his fist, exclaiming :—

"This can't last for ever! I am not a slave, after all, although I am locked up. And if I were, I would soon gain my liberty. Harry, we must be free. Rule Britannia says, "Britons never shall be slaves." We are Britons, *ergo*, cannot be slaves. We must go as sailors."

"Go as sailors," echoed Harry, according to his custom.

"Yes, for at sea there will be no uncle to lock us up, and no old Squash to dose us with *pensums*, nor policemen to prevent us flying our kites, or bowling our hoops in the streets. Sailors are independent."

"Do you believe so," said Harry.

"Did you not notice how Captain Lowell has the air of a man who is under no kind of restraint. He told uncle that his choice old Madera was not so good as some he had on board his ship: he asked twice for pudding, and told all his stories with his elbows resting on the table, which aunt expressly forbids our doing. That's what I call a free man, Harry. Yes brother, it is decided, no matter how: we must make our beds on board ship. There, at least, we shall have no old pedant to dose us with his latin pills, and we shall not be locked up when the sun shines as bright as it does to day."

"We must get on board," said Harry, "but how?"

"We shall find a way," replied John.

He had scarcely finished speaking when the door of their prison opened, and the uncle entered, accompanied by Captain Lowell.

"Now boys," said the Captain, "put on your best coat and hat, and I will take you on board my ship."

The boys were perfectly astonished.

"Captain Lowell sails to-morrow on a long voyage," said the uncle, "and has invited you to dine with him to-day. I have consented, but you must make up the term of your imprisonment to-morrow."

"Do you not understand," said John to his brother when they were again alone. "It was necessary that some one should stay at home to watch us; but as they all want to go and dine on board the ship, they are obliged to take us along with them. But no matter: that may be an advantage to us."

Two boats were waiting at the pier to convey the guests, including John and Harry, on board, and in a few minutes they were on the deck of the frigate.

Captain Lowell had prepared a splendid reception for his friends. The ship was gaily dressed with all her flags flying, the decks clean scoured, and the poop covered with an awning, under which the dining tables were spread.

The two boys were astonished and delighted. They ran all over the ship, examining everything with the greatest curiosity.

Upon reaching the forward deck John suddenly found himself face to face with the sailor boy to whom he had given a lesson in politeness the day previous. The boy recognised his foe, and appeared embarrassed. But John, laughing, spoke to him, and they were soon engaged in conversation. John spoke of his eager desire to go to sea, and of his uncle's opposition to his wishes. The sailor boy, whose name was Martin, explained to him the means of gratifying his desire in spite of his uncle's opposition, when he came to call the two brothers to breakfast.

Dinner was over, and the company had just risen from the table, when an officer came on board with despatches for Captain Lowell. They contained orders for him to raise anchor immediately, and get into the Channel before night.

At this news the guests were compelled to take a hurried leave of their host, and boats were quickly manned to convey them ashore.

John and Harry were about making their way to the captain's barge when the sailor boy made them a sign.

"Are you decided," said he, "to give them the slip?"

"Quite decided," replied John.

"Now's your time, then: go down there, and hide yourselves behind those barrels."

"But they will make search for us."

"I'll manage it all for you," replied Martin.

The two brothers looked in each other's face, and hesitated for a moment. But, as before stated, John was a determined boy, who did not readily abandon a project.

"Let us go down, Harry," said he, with emotion.

"Let us go down," echoed Harry.

And they disappeared below the ship's deck.

Meanwhile their uncle, who had been deeply engaged in conversation with Captain Lowell, took his seat in the captain's barge, where he had expected to find his nephews; but not seeing them there, he looked around in surprise, and inquired if any one had seen his nephews, or knew what had become of them.

"Two young gentlemen, one very tall and handsome, and the other rather humpbacked?" inquired Martin, the sailor boy.

"Exactly," replied the uncle.

"They went ashore in the first boat; they will be there long before us."

Mr. Durand, the uncle, wished to satisfy himself as to the truth of this statement; but the boats that had first started were far away, and Captain Lowell was in a great hurry to weigh anchor; so the uncle composed himself, determining that as soon as he got on shore, he would inflict punishment on his nephews for going away without him.

As soon as the boats returned from carrying the guests ashore, the anchor was weighed, and in half an hour the ship *Perseverance* was sailing before the wind at the rate of ten knots an hour.

Not until dusk, and when the ship was out of sight of land, did the two brothers venture out of their place of concealment. Captain Lowell, when he saw them, was greatly perplexed and vexed; but as the mischief was done, and could not be remedied, he tried to make the best of the matter. So he questioned John, and soon found that he was determined to run all the chances of a sailor's life.

"You will remain, of course, you young rogues," said Captain Lowell; "but remember, you will be treated like the rest of the crew. You will find this no place to play your pranks in, and if you do not desire to become acquainted with the cat-o'-nine-tails, you will take care to behave yourselves properly. Go and find Boatswain Cabot: he will give you your rations and a hammock. If you wish to become sailors, you must do as sailors do."

Boatswain Cabot looked at the boys from top to toe, turning his tobacco quid first from one side of his mouth to the other; then, looking at Martin, he inquired—

"Do you know where these young shrimps come from?"

Martin, winking at the boatswain, replied:—

"They are two young gentlemen of good family who have come on board our ship to be independent."

Boatswain Cabot looked first at Martin, then at the boys. Then, turning to Harry, he said,—

"You first. You'll join our mess. If we happen to be dull or out of humour, you shall show us your humpback, and that will amuse us."

"I don't wish to be separated from my brother," said John.

Boatswain Cabot turned towards him with an air of the greatest astonishment.

"You wish—you wish—ah, well! I'll excuse you; but for a novice to talk like the captain about what he wishes. Tell the young gentleman, Martin, that I wish to apologise. Ah! it is very funny to come here to be independent."

The old sailor roared with laughter. John, quite disconcerted, wished to make a remark, but the boatswain rudely interrupted him.

"Enough talk," said he, "let us go below and get you what you require—only don't forget," he added, "that nobody has a will of his own here except the captain."

This first conversation somewhat shocked John's notion of the charms of a sailor's life; but he had not learned all yet.

It was not long before the boys experienced all the annoyances of sea-sickness, but no one pitied their sufferings. Martin only visited them two or three times to slacken their hammocks so that they might feel the rolling of the ship more, and to offer them a piece of fat pork to increase their nausea and sufferings. However, they got over their sickness about the third day, and were able to go on deck.

Arm in arm they walked up and down the deck, when suddenly Boatswain Cabot perceived them, and, running up to them, shouted in their ears,—

"What are you doing here, you young shrimps?"

"Taking a walk to get a little fresh air," replied John.

"What! upon the quarter-deck?" cried Cabot.

"Why not? it is as good here as anywhere else."

"Why not, you ignorant cubs? Don't you know that the quarter-deck is for the officers only—not for such crabs as you?"

"I did not know it," replied John.

"Well, you know it now; and don't let me catch you here again. For'ard, now, both of you."

John and his brother obeyed with an ill grace, and went and seated themselves near the capstan.

"I am hungry, brother John," said Harry, after a few minute's silence. "Remember, we have fasted for these three days, and I feel very faint."

"Let us go and get something to eat, then," said John.

But when they presented themselves at the caboose, the cook informed them they could have nothing: the rations had been distributed, and they must wait until the next meal was ready.

"Let us go back to bed, then," said Harry.

"Don't you know that the hammocks are taken down?" replied John.

"Confound it," grumbled Harry: "it appears that we can neither walk, nor eat, nor sleep, except by rule."

John did not reply, but he began to doubt whether novices enjoyed much independence aboard a Queen's ship.

Things did not improve during the succeeding days. The boys had their duties to perform: scrub the decks, man the yards, and drill at appointed hours, and at the word of command. John resisted, but he had to perform his task like the others, and as he was obstinately rebellious, he was fastened to a gun carriage and pitilessly flogged.

At first Captain Lowell protected the boys, and upon hearing complaints against them, he contented himself with reprimanding them, and urged them to show obedience; but when he saw that they persisted in their disobedience, thus setting a bad example to others, he left them to suffer all the severity of naval discipline.

The consequence was, that John suffered an uninterrupted series of punishments, of which unluckily Harry had to take a share, which caused them both to regret their uncle's scoldings, and old Squash's *pensums*. But John was too proud to acknowledge his error or confess his fault; he merely secretly vowed to seize the first opportunity of escaping from the lash of Boatswain Cabot. Unfortunately such an opportunity was difficult to meet with.

Besides the rough and active life now led by the two brothers, far from injuring them, had singularly developed their strength. John soon became quite manly, and Harry himself seemed to gain in breadth what he ought to have gained in height: Boatswain Cabot compared him to the hull of a dismasted ship.

The object of Captain Lowell's voyage was to verify certain doubtful points on the sea-charts, in various parts of the world, and might in all probability continue several years. The *Perseverance* after being fourteen months at sea, cast anchor one day before an unknown island in the tropics. Captain Lowell had perceived through his telescope a rivulet of water flowing into the sea, and he thereupon resolved to take in a good supply of fresh water.

The long boat was therefore armed, and the two brothers made part of a detach-

ment sent on shore. It had been expressly ordered that no one should go beyond the shore, but John cared little for prohibitions when urged by his desires. Therefore, taking advantage of the moment when Boatswain Cabot was busy loading the boat with a cask of water, he fled with his brother through a grove of trees into the interior of the island.

(To be continued.)

THE CHOICE OF BOOKS.

PERSONS occupied with the natural or physical sciences are often consulted upon the choice of elementary books best adapted to initiate students into one or the other science; which as they have all a strict connection with each other, those who enter upon the study of one science without having any idea of the others, encounter formidable difficulties at every step. We think, therefore, that in a well directed education, we might, in the course of a few years, give to a young man of sixteen to nineteen, some very correct notions of the physical world by putting into his hands a well selected series of elementary works. Nevertheless, this study will prove barren, and without result if not accompanied by demonstrations. The teacher and the pupil must strive together to see in nature the phenomena described in books. Most persons imagine that they can learn nothing unless provided with all the appliances of investigation by which the savant is surrounded in his experiments and researches. They confound the means indispensable to him who desires to advance science, or sound its depths with those which are sufficient to teach its elements. A complete course of study for a youth naturally divides itself into three parts:—

1st. He must first make preliminary studies, that is to say, those which serve as the basis and instruments of the others; those which form the mind and mature the judgment, and prepare the mind to receive the various seeds of knowledge that will be cast into it; lastly, those which contain the principles common to several sciences, uniting with and abridging the elements, and facilitating the means of making further progress.

2nd. He must afterwards acquire exact knowledge of most of the sciences.

3rd. Lastly, he must propose to himself an aim, attach himself to some special object of pursuit, and thoroughly instruct himself in everything that relates to this object.

We may acquire a good idea of *astronomy* without occupying an observatory. With a barometer, hygrometer, and a few thermometers we can render an account of some of the most important phenomena of *meteorology*. For *geology* and *mineralogy*, the quarries hollowed out of the neighbouring hills; for *zoology*, the commonest animals, or an aquarium; for *botany*, the plants of our gardens and fields are ever open books in which we may con the principles of science. It is

not subjects for study that are wanting but the spirit of observation, the sustained attention which discovers, pursues, and analyses a phenomena in every part. Our education, at first exclusively literary, causes us to mistake the true scientific method. In literature or in history the book is everything—to read is to learn. In science, the book is the incomplete and faithless interpreter of nature, or rather, nature is the book, and the moulded letter is only the commentary. Therefore, treatises on zoology and botany are guides intended to show no creatures which can be known only by being seen, and always remains unknown to him who limits himself to reading a description of them. It has been attempted of late to replace natural objects by drawings representing them. This is a step in advance, for the pencil pourtrays the forms which words are incapable of painting. Nevertheless, the sight of the object itself is always indispensable, for the drawing is only a more or less faithful or defective picture of the object.

Professors devoted to teaching the natural and physical sciences are often astonished at the delight their pupils appear to experience at being instructed through the eyes. They state, moreover, that it is the easiest, the most agreeable, and most amusing mode of instructing. Notions acquired in this manner are true and clear, and remain graven on the memory; those which come by the indirect way of books are confused and false, and are soon effaced. We must then here boldly protest against this spirit of routine, the force of moral inertia, in virtue of which the mind continues to move in the same path and direction, although the aim be completely diverted and changed. The pupil who quits letters to study the physical sciences, passes, so to speak, from one medium into another. We do not assert that his first studies are useless; on the contrary, we consider them indispensable, even in the rough search after truth, delicacy of sentiment, lucid expression, with elegance and elevation of language are auxiliaries, the want of which makes itself felt in all the works of the savant who has never cultivated letters. It would be to mistake our idea then, to suppose for a single moment that we have the intention of representing the study of letters as useless, or even prejudicial to the sciences. This absurd notion is not ours; only, we insist on this point, that the aim and the method, like the faculties set in motion, differ according as we apply ourselves to letters, or to the study of the physical world. These preliminaries established, we now proceed to indicate some elementary works forming a series for the use of those who wish to acquire general but correct ideas of the physical world :—"Arnott's Elements of Natural Philosophy;" "Herschell's Preliminary Discourse on the Study of Natural Philosophy;" "Herschell's Astronomy;" "Kaemtz's Meteorology;" "Dana's Mineralogy;" "Lyell's Geology;" "Lindley's Botany;" "Milne Edward's Zoology;" "Mrs. Somerville's Connexion of the Physical Sciences;" "Herschell's Physical Geography."

THE PILOT'S STORY.

I.

IT was a story the pilot told, with his back to his hearers,—
Keeping his hand on the wheel and his eye on the globe of the jack-staff,
Holding the boat to the shore, and out of the sweep of the current,
Lightly turning aside for the heavy logs of the drift-wood,
Wisely shunning the snags that made us sardonic obeisance.

II.

All the soft damp air was full of delicate perfume
From the young willows in bloom on either bank of the river,—
Faint, delicious fragrance, trancing the indolent senses
In a luxurious dream of the river and land of the lotus.
Not yet out of the west the roses of sunset were withered;
In the deep blue above, light clouds of gold and of crimson
Floated in slumber serene, and the restless river beneath them
Rushed away to the sea with a vision of rest in its bosom.
Far on the eastern shore lay dimly the swamps of the cypress;
Dimly before us the islands grew from the river's expanses,—
Beautiful wood-grown isles, with the gleam of the swart inundation
Seen through the swaying boughs and slender trunks of their willows;
And on the shore beside us the cotton trees rose in the evening,
Phantom-like, yearningly, wearily, with the inscrutable sadness
Of the mute races of trees. Whilst hoarsely the steam from her 'scape-pipes
Shouted, then whispered a moment, then shouted again to the silence,
Trembling through all her frame with the mighty pulse of her engines;
Slowly the boat ascended the swollen and broad Mississippi,
Bank-full, sweeping on, with nearing masses of drift-wood,
Daintily breathed about with hazes of silvery vapor,
Where in his arrowy flight the twittering swallow alighted,
And the belated blackbird paused on the way to its nestlings.

III.

It was the pilot's story:—"They both came aboard there, at Cairo,
From a New Orleans boat, and took passage with us for Saint Louis.
She was a beautiful woman, with just enough blood from her mother
Darkening her eyes and her hair, to make her race known to a trader. [such—
You would have thought she was white. The man that was with her—you see
Weakly, good-natured, and kind, and weakly, good-natured, and vicious,
Slender of body and soul, fit neither for loving nor hating.
I was a youngster then, and only learning the river—
Not over-fond of the wheel. I used to watch them at *monte*
Down in the cabin at night, and learned to know all of the gamblers;
So when I saw this weak one staking his money against them,
Betting upon the turn of the cards, I knew what was coming:
They never left their pigeons a single feather to fly with.
Next day I saw them together—the stranger and one of the gamblers:
Picturesque rascal he was, with long black hair and moustaches,
Black slouch hat down to his eyes from his villanous forehead:

On together they moved, still earnestly talking in whispers,
On toward the forecastle, where sat the woman alone by the gangway.
Roused by the fall of feet, she turned, and, beholding her master,
Greeted him with a smile that was more like a wife's than another's,
Rose to meet him fondly, and then, with the dread apprehension
Always haunting the slave, fell her eye on the face of the gambler,
Dark and lustful, and fierce, and full of merciless cunning.
Something was spoken so low that I could not hear what the words were;
Only the woman started, and looked from one to the other
With imploring eyes, bewildered hands, and a tremor
All through her frame: I saw her from where I was standing, she shook so.
'Say! is it so?' she cried. On the weak white lips of her master
Died a sickly smile, and he said,—'Louise, I have sold you.'
God is my judge! May I never see such a look of despairing
Desolate anguish as that which the woman cast on her master,
Griping her breast with her little hands as if he had stabbed her,
Standing in silence a space, as fixed as the Indian woman,
Carved out of wood, on the pilot-house of the old Pocahontas!
Then, with a gurgling moan, like the sound in the throat of the dying,
Came back her voice, that, rising, fluttered through wild incoherence
Into a terrible shriek that stopped my heart, while she answered:—
'Sold me? sold me? sold——And you promised to give me my freedom!
'Promised me for the sake of our little boy in Saint Louis!
'What will you say to our boy when he cries for me there in Saint Louis?
'What will you say to our God? Ah, you have been joking! I see it!
'No? God! God! He shall hear it, and all of the angels in heaven—
'Even the devils in hell!—and none will believe when they hear it!
'Sold me!'—Fell her voice with a thrilling wail, and in silence
Down she sank on the deck, and covered her face with her fingers."

IV.

In his story a moment the pilot paused, while we listened
To the salute of a boat that, rounding the point of an island,
Flamed toward us with fires that seemed to burn from the waters,—
Stately and vast and swift, and borne on the heart of the current.
Then, with the mighty voice of a giant challenged to battle,
Rose the responsive whistle, and all the echoes of island,
Swamp-land, glade, and brake replied with a myriad clamor,
Like wild birds that are suddenly startled from slumber at midnight;
Then were at peace once more, and we heard the harsh cries of the peacocks
Perched on a tree by a cabin-door, where the white-headed settlers,
White-headed children, stood to look at the boat as it passed them,
Passed them so near that we heard their happy talk and their laughter.
Softly the sunset had faded, and now on the eastern horizon
Hung, like a tear in the sky, the beautiful star of the evening.

V.

Still with his back to us standing, the pilot went on with his story:—
"Instantly all the people, with looks of reproach and compassion,
Flocked round the prostrate woman. The children cried, and their mothers

Hugged them tight to their breasts; but the gambler said to the captain,—
'Put me off there at the town that lies round the bend of the river.
'Here, you! rise at once, and be ready now to go with me.'
Roughly he seized the woman's arm, and strove to uplift her.
She—she seemed not to heed him, but rose like one that is dreaming,
Slid from his grasp, and fleetly mounted the steps of the gangway,
Up to the hurricane deck, in silence, without lamentation.
Straight to the stern of the boat, where the wheel was, she ran, and the people
Followed her fast till she turned, and stood at bay for a moment,
Looking them in the face, and in the face of the gambler.
Not one to save her—not one of all the compassionate people!
Not one to save her, of all the pitying angels in heaven!
Not one bolt of God to strike him dead there before her!
Wildly she waved him back, we waiting in silence and horror.
Over the swarthy face of the gambler a pallor of passion
Passed, like a gleam of lightning over the west in the night time.
White she stood, and mute, till he put forth his hand to secure her;
Then she turned and leaped—in mid air fluttered a moment—
Down there, whirling, fell, like a broken-winged bird from a tree-top,
Down on the cruel wheel, that caught her, and hurled her, and crushed her,
And in the foaming water plunged her, and hid her for ever!"

VI.

Still with his back to us all the pilot stood, but we heard him
Swallowing hard as he pulled the bell-rope to stop her. Then, turning—
"This is the place where it happened," brokenly whispered the pilot.
"Somehow, I never like to go by here alone in the night-time."
Darkly the Mississippi flowed by the town that lay in the starlight,
Cheerful with lamps. Below we could hear them reversing the engines,
And the great boat glided up to the shore like a giant exhausted.
Heavily sighed her pipes. Broad over the swamps to the eastward
Shone the full moon, and turned our far-trembling wake into silver.
All was serene and calm; but the odorous breath of the willows
Smote like the subtile breath of an infantine sorrow upon us.

FIDELITY.

After the execution of Sabinius, the Roman general, who suffered death for his attachment to the family of Germanicus, his body was exposed upon the precipice of the Germoniæ, as a warning to all who should dare to befriend the house of Germanicus. No friend had courage to approach the body; one friend only remained true, his faithful dog. For three days the faithful animal continued to watch the body. His pathetic howlings awakened the sympathy of every heart. Food was brought him, and he was kindly encouraged to eat; but on taking the bread, instead of obeying the impulse of hunger, he fondly laid it on his master's mouth, and renewed his lamentations, but did not quit the body. The corpse was at length thrown into the Tiber, and the generous creature leaped into the water after it, and clasped it between his paws, vainly endeavoring to prevent it from sinking.

LITTLE STARLIGHT.

IT was soon after the first of those terrible Wilderness battles of last spring that Little Starlight made his first appearance among us.

Now, have you any idea who Little Starlight was? Very probably, from his romantic name, you picture him to yourself as a pretty boy—a beau-ideal Young America, with clustering curls, and the relevant blooming precocity of face and form. Nothing of the kind. *Our* Little Starlight was a negro urchin extremely small for his age—which might have been fifteen, could we have had a date to reckon from—and as black as the ace of spades, when the ace of spades is excessively black and shiny.

Where he came from, whom he belonged to, how he came among us, we never exactly knew. He was a sort of masculine Topsy, and probably merely "growed" somewhere in the vicinity of our bivouac. On the morning after the battle he had been found in our lines, strutting about the camp in a very nonchalant way, with a quick observing eye for every thing he saw. His appearance was comical in the extreme. Upon his ebon head, and entirely concealing his crisp wool, was jauntily placed a span-new artillery cap, which he had probably picked up from the field. He had fastened to the right shoulder of his ragged coat—a swallow-tailed blue of unknown antiquity—an immense epaulet, probably plundered from the baggage of some rebel officer; while a silken sash of flaring crimson was twined round his waist in a manner at once striking and barbaric, with a long end that trailed behind like the gaudy tail of some variegated tropic bird. His trowsers—we will skip them; let it suffice to say that they were unmentionables to the last degree.

No one could tell how the little fellow got into the camp, and he wouldn't tell himself. The pickets and sentries swore prodigiously that he had not passed them. So we were compelled to let the mystery of his appearance remain unsolved.

It was shortly after sunrise when the corporal of the guard brought him before me, with

"Here's a prisoner, or contraband, or something of the kind, chaplain. I just picked him up, and don't know what to do with him."

I almost exploded with laughter at seeing the individual in question, but immediately sat down on a stump and proceeded to investigate. Captain Allen came along at the same time, and presently the Major also dropped in. So we formed ourselves into an informal court-martial around the object of our attention, with the view of having some amusement for the hungry half hour that would elapse before breakfast. The "brass" of the lad was surprising; for he never changed countenance during the whole of this ceremony, which we made as imposing as we could by word and look. All eyes were turned on me expectantly, so I opened the proceedings.

"What is your name, my boy?"

"Dun'no, mass'r. 'Spect I isn't got none," was the reply, accompanied by a

sparkling grin of extraordinary breadth, as though his anonymous condition was a matter of much self-satisfaction.

"Oh, you must have some name," I said. "What did they call you at home?"

"I allers came wi'out callin'. But when I shinned along kinder slow, sometime dey'd sing out 'Nig!' sometime 'Little Nig!' an' den again 'Hyar, you d—d Nig!' I'll bet dey did, mass'r! Yah! yah! I'se a awful cuss, I is!' he continued, swinging his arms gleefully about and shuffling his bare feet, as if contemplating a breakdown.

"Silence!" roared the Major, who acted as presiding officer, at the same time knitting his brows furiously to conceal the laughter which almost choked him. "Silence, or I'll commit you for contempt!"

Somewhat startled by the vehemence of this injunction the little fellow remained silent, and taking off his cap, commenced stroking his mat of a head in a serious manner, which was more comical than his mirth.

"Well, my friend," I resumed, "where do you come from?"

"No whar ob late, mass'r." I'se been sleepin' out recen'ly, Yer see I'se a awful cuss, I is. Yah! yah! I'se—"

"Silence! exclaimed the judge.

"Sartin, sartin, mass'r! Yah! yah!"

"Who do you belong to?" I resumed.

"Yah! yah! I ain't got none. Yer see he's gwine away, he is."

"But what was your master's name?"

"Cunnel Billy."

"Billy what?"

"Dun'no. Yer see dis chicken were left behin' wid ole missus an' de gals wile Mass'r Billy gwine to de war way up to Richmon'. An' yer see, de ole missus she dun gib dis nig a lickin', so I jis slips out in de night time, climbs inter de barn, steals all de pigeons, an' clars de track for Ole Virginny. Yah! yah! I'se a awful cuss, I is!"

"Pigeons! What did you do with the pigeons?" I asked, my curiosity carrying me away from the subject in hand.

"Libs on 'em, to be shore, mass'r! Dey'se bully fodder, nicer dan de hard tack. Yah! yah! I'se got jis one lef'."

And sure enough as he spoke, he drew from one of the capacious pockets of his tattered coat a sorry-looking pigeon, still alive, which, before we could guess his intention, he proceeded to put to death in a very summary manner. Nipping the head of the bird between his finger and thumb, he twirled the body around in the air till it fell to the ground, completely twisted from the head, which remained in his hand.

"What are you doing that for?" I exclaimed, somewhat horrified at what I saw, as were the rest of the "Court."

The little fellow threw away the pigeon's head without answering, picked up the body, and laid it at my feet with a "Yah! yah!" from which I judged that it was meant as a present for my breakfast.

"Well, what is the decision of the Court?" said I laughing, and turning to the Major.

"I really do not know," was the reply. "Ask the monkey if he will fight and which side he favors."

I put the question.

"De union all de time, *shore*!" was the enthusiastic reply.

"What can you do?" I asked.

The little fellow cast a comprehensive glance around him in every direction, as if he could do any and every thing under the sun, and was merely puzzled upon which to try his hand for an outset.

At length his eye caught sight of a kettle-drum which was taking an airing a short distance off, and with a guffaw of delight he ran toward it. Quick as thought the strap was over his shoulder, the sticks were in his hand, and throwing back his head with a gesture of pride, he rolled off the reveille with the flourish and accuracy of a master.

"Bravo!" cried Captain Allen. "You're the man we want. Why not have him drum for our company?" he added, turning to me. "Johnny went into hospital the day before yesterday, and we have had but little music since."

"An excellent idea!" said I.

The Major also agreed; and Starlight, to his infinite satisfaction, was forthwith installed as second drummer-boy, Company C—th New York Infantry.

His name—by which he was altogether know among us—originated, at the suggestion of one of the officers, in the wonderfully starry aspect of the heavens on the night preceding the early morning of his "capture."

He was a favorite in the company, and a standing joke with the regiment, in a single day. No one could surpass him on the drum, and he never complained of too much work. We made him wash himself thoroughly in the river, and then presented him with a genuine uniforn, of which he appeared as proud as a young peacock of her sprouting tail.

Little Starlight was not one of us long, but if I should undertake to describe one-half of his whimsical characteristics "the sun would go down on the unfinished tale."

He never got out of humour, was never excessively hungry, and his slender frame was of iron mould. He endured, without a murmur or any marks of fatigue, marches which tried to the utmost the stalwart frames of hardened veterans, and would, after the march execute with gusto a dozen breakdowns, Jim Crows, and Bob Ridleys for the diverson of the weary regiment. I never saw him flinch when under fire, and I have seen him under the hottest. He had a *penchant* for obtaining trophies on the field of battle; and carried so many knives and pistols upon his person that he was quite a walking arsenal. More than once he was seen to use his fire-arms, and if at long range, it was, nevertheless, with the best intentions.

It is true he had his foibles, and grave ones. He was a natural born thief, and my most impressive sermonising totally failed to convince him of the gravity of his fault. He seemed to consider himself naturally depraved, and was therefore philosophically complacent with his sin, meeting my admonitions with his usual "I'se a awful cuss, mass'r, I is." In my heart, search as I would, I could find less of blame than pity for him when I thought of the criminal neglect which must have attended his bringing up, with that of the rest of his wronged and

unfortunate race. Besides, the material effects of his thieving were not considerable. There was not much to steal in the first place; and when any one did miss anything worth retaining, a tight clutch upon Starlight's windpipe and a few preposterous threats would generally cause him to "shell out" the missing article, if it was really in his possession. And it seemed generally conceded that his virtues more than counterbalanced his foibles. For his hand was as ready to support a wounded man to an ambulance as it was at rifling the pockets of a fallen foe.

There was one thing alone which almost redeemed him in my eyes; and that was his passionate desire for freedom—his enthusiastic devotion to the cause under whose banner he served.

My duties as chaplain were in sad demand in those bloody-battle days, when ministrations to the dying and prayers for the dead were so frequently required; but I found some time, nevertheless, to devote to Starlight. The little heathen always listened with the profoundest gravity to everything I said, but with a perceptible stolidity which often discouraged me, except when I spoke of the future of his race, of their prospects for freedom and improvement. His eyes would light up at this, his expressive features would fairly glow with enthusiasm.

"Yes, mass'r," he one day exclaimed, "I feels it in my bones. It'll come roun' one day or 'nother. I knows I'll be free!"

"You are so already," said I. "The President's Proclamation has made you so. You have nothing to fear."

"Jis' so, mass'r," he replied. "De Presiden' *he* am a nice man, *he* am. But I doesn't feel it in de *bones* yit; I nebber will till I git on to *him*, yer know. Jis' lemme git on to *him*—only once!"

"On to whom?" I asked.

"On to de Ole Man—Cunnel Billy. Jis' lemme git on to him, *den* I'll be free!"

"You surely would not kill your old master?"

"Wouldn't I? Yah! yah!" And thereat Starlight began to fumble among the various knives and pistols which adorned his person in a manner that was anything but conciliatory. "Trus' dis chicken," he continued. "I keeps on de look-out in ebery fight. I seed him lick my ole mudder till de blood flew. Jis' lemme on to him, mass'r, and you'll see de blood fly yourse'f. Yah! yah! I'se a awful cuss, I is."

Upon a briefer acquaintance with Starlight, I should have smiled at the serio-comic manner in which these sentiments were enunciated; but as it was, I shuddered at the intensity of passion which lurked in his tones.

And through all those terrible battles and rapid marches and counter-marches, with which General Grant terrified and confused the rebel foe, from the Rapidan to the walls of Richmond, Little Starlight conducted himself with sterling credit, winning golden opinions from all, and, upon one occasion, a hearty hand-shake from the General of our division.

It was, however, at the severe skirmish on our left, immediately following our general repulse from the rebel works, and shortly before the transfer of our army to the south bank of the James, that the part which Starlight played in the great drama was to assume a truly tragic phase.

The enemy's skirmishers and ours were hotly engaged, and the fight bade fair to be bloody, if brief. I was immediately in the rear of a portion of our regiment, which was in reserve, busy with the wounded; and Starlight was hopping about me, doing what he could to assist, but now and then looking up, and throwing curious glances toward the fight, which was not distant.

Suddenly an exclamation from him caused me to turn, when I saw him gazing intently, with his hand pointing toward the ground where the skirmish was progressing.

"Hooray! hooray! Dere he is! dere he is!" he shouted.

He succeeded in directing my attention to a fine-looking rebel officer, who was cheering on his men in a charge they were making upon our position.

"Dat's him! dat's him!" cried Starlight, at the same time freeing himself from his drum and casting it on one side, while his voice was wild and strange with a fierce joy.

And before I could arrest him, or exactly understand his intention, he snatched a musket and bayonet from the ground, and ran like a deer after our column, which was advancing to repel the threatened assault.

From my position I could see the whole affair. The smoke of the musketry fire was thick, but a western gale was blowing, and the opposing columns were pretty plainly discernible. Then the firing ceased, and I saw them meet in the shock of steel to steel. The ranks of the rebels were broken, and they scattered back toward their abatis and the thick woods on their right; but the officers retained their ground, endeavouring to inspirit their men by their own examples, and fighting bravely. I saw Little Starlight rush headlong at the man to whom he had directed my attention, and I could hear his shrill cheer come floating to me on the wind. He seemed to be but half the size of his antagonist, yet they met with a shock which seemed equal on both sides. The officer evaded the bayonet of his puny foe, and struck out sharply with his sword; and I saw the blood spring up high from the negro's neck. But the next instant they closed; the rushing bayonet gored the breast of the officer, and he rolled to the plain. Twice —thrice I saw the flashing bayonet leap into the air, and flash down again upon the prostrate man; and then, with a louder whoop than before, Starlight sprang on further into the fight; and the whole scene was shut from my view by the gathering smoke, for the breeze had died away.

The fight was soon over. The rebels were driven far back into the woods, their abatis captured and held, and we in possession of the field. My interest in what I had witnessed was so intense that I immediately hastened to the ground.

Our loss had been inconsiderable, but that of the enemy was large. Their dead and wounded lay in all directions. I found the officer with whom I had seen Starlight engaged. He wore the insignia of a rebel captain, and was stone dead, with his breast pierced many times by bayonet thrusts. As I was standing beside the body, Sergeant K——, of Company C, came up to me with a troubled look.

"Little Starlight is dying, sir," was his greeting, "and he wishes to see you very much."

"Starlight dying! Impossible!" I ejaculated, at the same time hurrying to the point indicated."

It was but too true.

Little Starlight lay at the edge of the enemy's works, with a frightful gun-shot wound in the back part of his head, and as many as twenty brave fellows were clustering around him with sympathizing looks and tearful eyes. You may not believe me, but nevertheless I speak the truth when I say that the brave boy grinned joyously when he saw me.

"Yah! yah! Mass'r Chaplain," he cried, as I knelt by his side and took his hand: "dis nig's done for, he is. But did yer see me in de fight, mass'r? Did yer see me tackle dat ole coon, Cunnel Billy? Yah! yah! I'se got it at last, mass'r! I'se a awful cuss; but I'se got it at last!"

"Got what, my poor boy?" I whispered, with a trembling voice.

"FREEDOM!" cried Starlight, springing to his feet.

I saw that wild, strange gleam of passion leap into his rude features, and then he fell back into my arms.

"It am a lubly day, mass'r," he continued, speaking with great difficulty. "It am ebening now, an' de sun am setting, mass'r. But I hears de big drum ob de sky rollin' de rebellie ob de Lord. De day am breakin' for dis chile, mass'r; for *I'se got it at last!*"

His voice failed him here. He moved his lips; but in a moment they were stilled for ever. He was dead.

I laid him down gently on the grass.

The Major had also been standing by.

"Come," said he, taking me by the arm—"come, let us go."

And as we went away I saw his moustache tremble perceptibly.

There were three regular members of Company C who died the death in that skirmish, but I think not one of them was mourned with a deeper, sincerer sorrow than was Little Starlight. One of the sergeants, who was a rude rhymster in his way, composed a brief epitaph for him. Others of the Company performed what little offices they could; and the Colonel inquired particularly into the circumstances of his death. The Union slain were buried separately—they were so few. Starlight also had a little grave of his own. He was free at last, and he thus came into the ownership of about five feet of that earth which had not been a very affectionate mother to him.

I said that he had an epitaph. It was scrawled upon the rude head-board by the author; and, as there is something epigrammatic about it, it may not be out of place to conclude our story with.

HERE LIETH LITTLE STARLIGHT,
WHOSE ILL-STARRED SPIRIT WON
ITS RIGHT TO BLESSED FREEDOM THROUGH
THE FOEMAN'S DEADLY GUN.

BUT HE WILL, DOUBTLESS, SOMEWHERE
SHINE BRIGHTLY AFTER ALL,
AS THE STARS ARE IN THEIR GLORY
WHEN THE SHADES OF EVENING FALL.

SHIPWRECK AND CAPTIVITY OF CAPTAIN JOHN RILEY.

CHAPTER VI.

WE TRY TO GET TO SEA.—PUT OFF IN A LEAKY BOAT.—OUR SUFFERINGS AT SEA.—WE KILL OUR PIG.—IN DANGER OF PERISHING AT SEA, WE RETURN TO THE SHORE.

HOSTILITIES had now commenced, and we could not doubt but these merciless ruffians would soon return in force, and when able to overpower us, would massacre us all, as they had already done poor Antonio. The wind blowing strong, and the surf breaking outside and on the wreck twenty or thirty feet high; the hope of getting to sea in our crazy long-boat was indeed but faint. She had been thumping alongside the wreck, and on a sandbank all day, and writhed like an old basket, taking in as much water as two men constantly employed with buckets could throw out.

The deck and outside of the wreck were fast going to pieces, and the other parts could not hold together long. The tide, (by being low,) together with the sand-bar that had been formed by the washing of the sea from the bow of the wreck to the beach, had very much lessened the danger of communicating with the shore during this day; but it was now returning to sweep everything from the wreck, aided by the wind, which blew a gale on shore every night.

To remain on the wreck, or go on shore, was almost certain death; the boat could no longer be kept afloat alongside, and being without provisions or water, if we should put to sea, we must soon perish. We had neither oars nor a rudder to the boat; no compass nor a quadrant to direct her course; but as it was our only chance, I resolved to try and get to sea; expecting, nevertheless, we should be swallowed up by the first surf, and launched into eternity altogether.

I, in the first place, sent Porter on shore to get the two broken oars that were still lying there, while I made my way through the water, into the hold of the wreck, to see once more if any fresh water could be found. I dived in at the hatchway, which was covered with water, and found, after coming up under the deck on the larboard side, as I expected, just room enough to breathe, and to work among the floating casks, planks, and wreck of the hold.

After much labour I found a water cask, partly full, and turning it over, discovered that its bung was tight. This gave me new courage, and after upheading it, I came up and communicated the circumstance to my shipmates, and we then made search for some smaller vessel to fill from the cask. After much trouble, a small keg was found in the after hold; it might probably hold four gallons—the head of the water-cask was stove in, and with the help of Mr. Savage and Clark, I got the keg full of water, and a good drink for all hands besides, which was very much needed. In the meantime, the others were employed in rigging out spars which we had lashed together over the stern of the wreck with a rope made fast to their outer ends, in order to give the boat headway, and clear her from the wreck, when we should finally shove off. Porter had returned with the oars, and also brought the bag of money that had been buried, containing about four hundred dollars: this he did of his own accord.

We had got the small boat's sails, consisting of a jib and mainsail, into the boat, with a spar that would do for a mast, and the brig's foretopmast staysail; the keg of water, a few pieces of salt pork, a live pig, weighing about twenty pounds, which had escaped to the shore when the vessel struck, and which had swam back to us again when we were driven from the shore; about four pounds of figs that had been soaking in salt water ever since the brig was wrecked, and had been fished out of the cabin: this was all our stock of provisions.

Everything being now ready, I endeavoured to encourage the crew as well as I could; representing to them that it was better to be swallowed up altogether, than to suffer ourselves to be massacred by the ferocious savages; adding, that the Almighty was able to save, even when the last ray of hope was vanishing; we should never despair, but exert ourselves to the last extremity, and still hope for His merciful protection.

As we surveyed the dangers that surrounded us, wave followed wave, breaking with a dreadful crash just outside of us. At every instant our hearts indeed failed us, and there appeared no possibility of getting safely beyond the breakers without a particular interference of Providence in our favour. The particular interference of Providence in any case I had always before doubted. Every one trembled with dreadful apprehension, and each imagined that the moment we ventured past the vessel's stern would be his last. I then said, "Let us pull off our hats, my shipmates and companions in distress." This was done in an instant; when, lifting my eyes and my soul towards heaven, I exclaimed:—

"Great Creator and Preserver of the Universe, who now see'st our distresses, we pray Thee to spare our lives, and permit us to pass through this overwhelming surf to the open sea; but if we are doomed to perish, Thy will be done: we commit our souls to the mercy of Thee our God who gave them: and oh! Universal Father, protect and preserve our widows and children!"

The wind, as if by Divine command, at this very moment ceased to blow. We hauled the boat out; the dreadful surges that were nearly bursting upon us suddenly subsided, making a path for our boat about twenty yards wide, through which we rowed her out as smoothly as if she had been on a river in a calm; whilst on each side of us, and not more than ten yards distant, the surf continued to break twenty feet high, and with unabated fury. We had to row nearly a mile in this manner: all were fully convinced that we were saved by the immediate interposition of Divine Providence in this particular instance, and all joined in returning thanks to the Supreme Being for this mercy.

As soon as we reached the open sea, and had gained some distance from the wreck, the ship returned, coming behind us with the same force as on each side the boat. We next fitted the mast, and set the small boat's mainsail. The wind now veered four points to the eastward, so that we were enabled to fetch past the point of the Cape, though the boat had neither keel nor rudder. It was sunset when we got out, and night coming on, the wind as usual increased to a gale before morning, and we kept the boat to the wind by the help of an oar, expecting every moment to be swallowed up by the waves.

We were eleven in number on board; two constantly baling were scarcely able to keep her free, changing hands every half hour. The night was very dark and

foggy, and we could not be sure of fetching clear of the land, having nothing to guide us but the wind. In the morning we sailed back again for the land, and had approached it almost within reach of the breakers without seeing it, when we put about again.

It had been my intention, after we had got to sea, to run down the coast in the hope of finding some vessel, or to discover the mouth of some river, in order to obtain a supply of water. But now the dangers and difficulties we should have to encounter in doing this were taken into consideration.

If we tried to navigate along the coast, it was necessary to know our course, or we should be in imminent danger of being dashed to pieces on it every dark day, and every night. The thick foggy weather would prevent our seeing the land in the daytime; whilst the wind, blowing almost direct on the land, would force us towards it, and endanger the safety of both the boat and our lives at every turn or point. We had no compass to guide us either by day or night; no instrument by which to find our latitude; no rudder to steer our crazy boat with, nor were we in possession of materials wherewith it was possible to make one; the boat had no keel to steady her, nor was there a steering place in her stern where an oar could be fixed by any other means than by lashing to the stern ring, which afforded a very unsteady hold.

On the one hand, we reflected that if we escaped the danger of being driven on shore or foundering at sea, and should succeed in reaching the cultivated country south of the Desert, we should have to encounter the ferocious inhabitants, who would not fail, in the hope of plunder, to massacre, or doom us to slavery, a slow but painful death.

On the other hand, we reflected that we had escaped from savages who had already killed one of our shipmates, had gained the open sea through Divine mercy, and could stand off to the westward without fear of being driven on shore. In this direction we might meet with some friendly vessel to save us, which was our only hope in that way, and the worst that could happen to us was to sink altogether in the sea, or gradually perish through want of sustenance.

Having considered, and represented to my companions the dangers that beset us on every side, I asked their opinions one by one, and found they were unanimously in favour of committing themselves to the open sea in preference to keeping along the coast. The dangers appeared to be fewer, and all agreed that it was better to perish on the ocean if it was God's will, than by the hands of the natives.

There being a strong breeze, we stood off by the wind and rigged our jib. We now agreed to put ourselves upon allowance of one bottle of water and half a bottle of wine among eleven of us, and a scrap of pork, and two soaked and salted figs for each man. During this day, which was the 30th August, 1815, we fitted waistcloths to go round above the gunwale of the boat to prevent the sea from dashing over; they were from eight to ten inches broad, made from the brig's forestaysail, and were kept up by small pieces of a board which we found in the boat, so that they helped in some measure to keep off the spray.

It had been cloudy all day, and the boat leaked faster than she had done before. As night came on the wind blew hard and raised the sea very high, but

the boat was kept near the wind by her sails, and drifted broadside before it, smoothing the sea to the windward, and did not ship a great deal of water.

On the 31st it became more moderate, but the weather was very thick and hazy. Our pig being nearly dead for the want of water, we killed it, taking care, however, to save his blood, which we divided amongst us and drank, our thirst having become almost insupportable. We also divided the pig's liver, intestines, &c., between us, and ate some of them (as they were fresh) to satisfy in some degree our thirst.

Thus this day passed away; no vessel was yet seen to relieve us; we had determined to save our wine for drink, which we accordingly did in some empty bottles, and found great relief from the use of it; for being obliged to labour hard by turns to keep the boat above water, our thirst was much more severely felt than if we had remained still.

The night came on very dark and lowering; the sky seemed big with an impending tempest; the wind blew hard from the N.E., and before midnight the sea combed into the boat in such quantities as several times to fill her more than half full. All hands were employed in throwing out the water with hats and things, each believing his final hour had at length arrived, and expecting that every approaching surge would bury him for ever in a watery grave.

The boat rocked like an old basket, letting in water at every seam, and split her timbers, working out or breaking off; the nails I had put in while last on shore were kept from entirely drawing out, merely by the pressure of the water acting on the outside of the boat. Sharp flashes of lightning, caused by heat and vapour shot across the gloom, rendering the scene doubly horrid. In this situation some of the men thought it was no longer of use to try and keep the boat afloat, as they said she must soon fill, in spite of all their exertions.

Having poured out our souls before our God, and implored pardon for our transgressions, each one felt perfectly resigned to his fate: this was a trying moment, and my example and advice could scarcely induce them to continue baling; whilst some of them, by thrusting their heads into the water, endeavoured to ascertain what the pains of death were, by feeling the effects the water would produce on their senses.

Thus passed this night: all my exertions were necessary to encourage the men to assist me in baling the boat, by reminding them of our miraculous escape from the savages, and through the surf to the open sea, and enforcing on their minds the consideration that we were still in the hands of the same disposing power, and that we ought not to suppose we were aided in escaping from the shore by a miracle to be abandoned here, and swallowed up by the ocean; and that for my own part, I still entertained hopes of our preservation; at any rate that it was a duty we owed to God and ourselves, to strive to the latest breath to prevent our own destruction.

Day came on amidst these accumulated horrors; it was the 1st of September; thirst pressed upon us, which we could only allay by wetting our mouths twice a day by a few drops of wine and water, and as many times with our urine.

The wind continued to blow hard all this day and the succeeding night with great violence, and the boat to work and leak in the same manner as before.

Worn down with fatigue and long continued hunger and thirst, scorched by the burning rays of the sun, and no vessel appearing to save us, our water fast diminishing, as well as our strength, every hope of succour by meeting with a vessel entirely failed me, so that in the afternoon of the 2nd of September, I represented to my companions, that as we were still alive, after enduring so many trials, it was my advice to put about, and make towards the coast again; that if we continued at sea, we must inevitably perish, and that we could but perish in returning towards the land; that we might still exist four or five days longer, by means of the water and provisions that remained, and that it might be the will of Providence to send us on the coast where our vessel had been wrecked, and where means were perhaps prepared to bring about our deliverance and restoration to our country and our families.

All seemed convinced that it was so, and we immediately put about with a kind of cheerfulness I had not observed in any countenance since our last disaster.

From this time all submitted to their fate with tolerable patience, without murmuring, and kept the boat free, though we had continual bad weather. We wetted our lips with wine and water twice every day, and ate the bones and some of the raw flesh of our pig, with its skin; but at length we became so faint as to be unable to take our turns in baling, whilst the boat laboured so much as to work off nearly all the nails that kept the planks to her timbers above water.

By the 6th September, at night, we had not made the land, and could not hope to make the boat hold together in any manner above another day. I expected we should have found the land that day, but was disappointed, and some of the crew began again to despair. Impelled by thirst, they forgot what they owed to their shipmates, and in the night got at, and drank off one of the two bottles of wine we had remaining. When I mentioned the loss of the wine on the morning of the 7th, all denied having taken or drank it, adding that it was an unpardonable crime, and that those who did it ought to be thrown overboard instantly. From the heat observable in their conversation, I guessed the offenders, but the wine was gone, and no remedy remained but patience, and a stricter vigilance for the future.

In a short time we discovered land at a great distance a-head, and to leeward. This gave all hands new spirits; hope again revived; the land appeared perfectly smooth in the distant horizon; not the smallest rising or hill was to be seen, and I concluded we must be near a desert coast, where our suffering would find no relief, but in death. We continued to approach the land, driving along to the southward by a swift current, roaring like a strong tide in a narrow rocky passage, until near sunset.

The coast now appeared to be formed of perpendicular and overhanging cliffs rising to a great height, with no shelving shore to land on or way by which we might mount to the top of the precipices. My opinion was that we should endeavour to keep to sea this night also, and steer along down the coast until by the help of daylight we might find a better place to land, and where we should not be in such danger of being overwhelmed by the surf; but in this I was opposed by the united voice of the mates and all the crew.

The surf was breaking high among the rocks near the shore. We were now

very near the land, and seeing a small spot that bore the appearance of a sand beach we made for it, approaching it with the help of our oars, we were carried on the top of a tremendous wave so as to be high and dry, when the surf retired, on a little piece of sandbeach just large enough for the boat to lie on. Without us, and in the track we came, numerous fragments of rocks showed their craggy heads, over which the surf foamed as it retired, with a dreadful roaring which made us feel we had once more escaped instant destruction by what appeared a miraculous interference of Providence.

We got out of the boat, and carried up the little remains of our water and pork among the rocks beyond the reach of the surf. The remains of the pig had been previously consumed; our boat was now stove in in good earnest; over our heads pended huge masses of broken and shattered rocks, extending both ways as far as the eye could reach. Our limbs had become stiff for the want of exercise; our flesh had wasted away for the want of sustenance, and through fatigue our tongues were so stiff in our parched mouths, that we could with great difficulty speak so as to be understood by each other, though we had finished our last bottle of wine between us, just before we ventured to the shore through the surf.

Being thus placed on dry land, we had yet to discover how we were to reach the surface above us, so taking Mr. Savage with me, we clambered over the rocks to the westward, for the coast running here from E.N.E. to W.S.W. induced me to think we were near Cape Blanco, which indeed afterwards proved to be the case, but we searched in vain; and as there appeared to be no access to the summit in that direction, we returned, it being then dark, to our shipmates, who had been busied in preparing a place on the sand, between rocks, to sleep on. We now wetted our mouths with water, ate a small slice of the fat of salt pork, and after pouring out our souls before the universal Benefactor, in prayers and thanksgiving for His mercy and His long-continued goodness—as had constantly been our custom—we lay down to rest, and notwithstanding our dreadful situation, slept soundly till daylight.

(To be continued.)

LAND! LAND!

WHY art thou so pale and sad, Ferdinand? Bringest thou bad news? "Captain, I cannot hold the ship much longer; if the shore does not soon appear you are lost, for the crew demand your life."

He had scarcely uttered these words when the mutinous sailors appeared growling like waves on the shore of a quiet bay after a storm.

"Traitor," they cried, "where is that which you promised us? Save us from starvation; if you cannot give us bread, give us your body."

The brave man met their rage with the gentleness of a hero, and replied—

"If my blood will satisfy you, take it; only let me see the sun once more brighten the east with his divine rays. If to-morrow no friendly shore appears,

then I will myself ask to die; but, till then, continue in the course I have pointed out, and put your trust in God!"

The calmness of the hero prevailed this time, as before.

"Be it as you say, captain; but if the sun rise again without showing us deliverance, you will behold its beams for the last time."

The sun sank below the horizon, twilight and darkness succeeded, and the heart of the leader was sorely oppressed.

Swiftly through the vast and silent sea the keel of the ship cut its way; the stars peeped out one by one, but alas! the star of Hope beamed not for the intrepid navigator. The captain, telescope in hand, paced the deck through the long hours of the night, his eyes constantly directed towards the western horizon.

"To the West! to the West! fly, O my faithful ship! Sole object of my dreams and aspirations; my dying thoughts and heart salute thee again."

But what mean the hurried footsteps that approach.

"Ferdinand, you look still paler and sadder. What news do you bring me?"

"O, captain, it is all over with you: the sun illumes our flag with his sacred rays.'

"Calm yourself, Ferdinand, those rays proceed from the hand of God, who watches from pole to pole, and who knows how to smooth the path to eternity for immortal souls. Farewell, dear friend, we shall meet again—in heaven."

The sounds of clashing swords and rattling chains fell dismally upon the ear. Columbus, calmly and bravely, prepared to meet his doom, when suddenly an exulting shout ran through the ship, echoed from mouth to mouth:—

LAND! LAND!

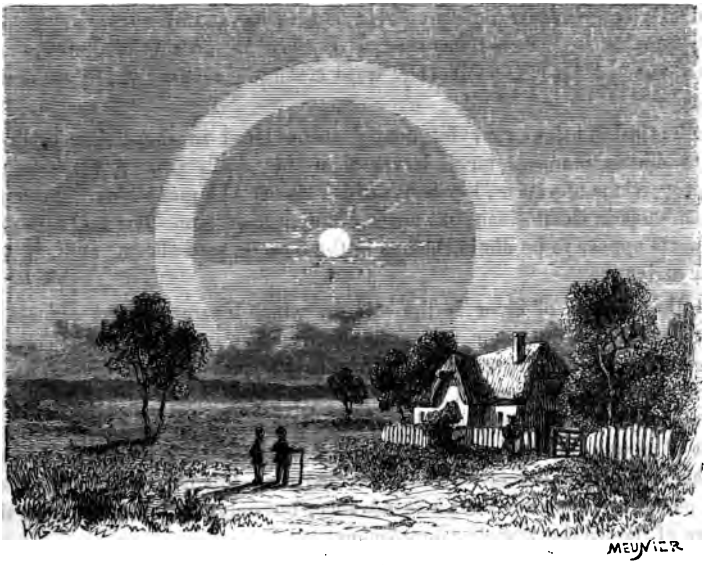
What no mind had ventured to anticipate, what the genius of Columbus had dared to hope for, now came in sight, illuminated by the rays of the sun; and the sailors, falling on their knees at the feet of this great man, addressed their prayers and thankgivings to the throne of their Almighty Father.

THE NATURAL PHILOSOPHER AND THE CAT.

I ONCE (says a French writer) saw a lecturer upon experimental philosophy place a cat under the glass receiver of an air-pump, for the purpose of demonstrating that life cannot be supported without air and respiration. The lecturer had already made several strokes with the piston, in order to exhaust the receiver of its air, when the cat, who began to feel herself very uncomfortable in the rarefied atmosphere, was fortunate enough to discover the source from whence her uneasiness proceeded. She placed her paw upon the hole through which the air escaped, and thus prevented any more from passing out of the receiver. All the exertions of the philosopher were now unavailing; in vain he drew the piston; the cat's paw effecfually prevented its operation. Hoping to effect his purpose, he again let air into the receiver, which, so soon as the cat perceived, she withdrew her paw from the aperture; but whenever he attempted to exhaust the receiver she applied her paw as before. The spectators clapped their hands in admiration of the cat's sagacity, and the lecturer was compelled to remove her, and substitute another cat who possessed less penetration for the cruel experiment.

THE POLAR REGIONS

WHAT chiefly distinguishes the Polar Regions from other parts of the earth is their long day and long night. Describing an immense spiral about the horizon, the sun ascends little by little to the highest point of his course to thirty degrees; then it returns in the same manner towards the horizon, and bids farewell to the earth, gradually disappearing in a gloomy twilight. Then, during the space of six months, the sun remains invisible.



HALO—(SEEN IN NORWAY).

"When," says Captain Parry, "we find ourselves for the first time immersed in the silent darkness of a Polar night, we cannot escape an involuntary sensation of terror; we feel as if carried beyond the domain of life. These dark and gloomy deserts appear like the uncreated spaces which the poet Milton has placed between the empire of life and death." Even animals are affected by the gloom which then reigns over nature. Under the influence of the constant darkness of the Polar night, Dr. Kane's Newfoundland dogs became mad and died.

The length of the day in the Polar Regions is about six months. During this long interval the sun never ceases to appear, and it is only a little lower

at midnight than at noon. The long days act in the same manner upon certain animals as the long nights do upon others. Lord Dufferin, in his "Letters from High Latitudes," relates, that in proportion as he advanced towards the north, and as the nights became shorter, a cock that he carried with him became more and more deranged. It never slept five minutes without waking in a state of nervous agitation, as though it were afraid of letting the dawn and the hour of its crowing pass by. At length, when there was no longer any night, the constitution of the poor animal was hopelessly deranged. It made one or two feeble attempts to crow, and then fell into a strange state of disorder. Finally, a prey to delirium, it began to cluck in a low tone, as though it were dreaming of its barn yard and early companions; then it suddenly sprung to the ship's side, flew overboard, and was drowned.

When the sun or the moon are visible in the Polar regions, they very frequently appear surrounded by *halos*, or accompanied by *parhelia*, or *mock suns, anthelia*, &c. Sometimes several of these meteors make their appearance at the same time, as if there were a celestial festival and illumination going on.

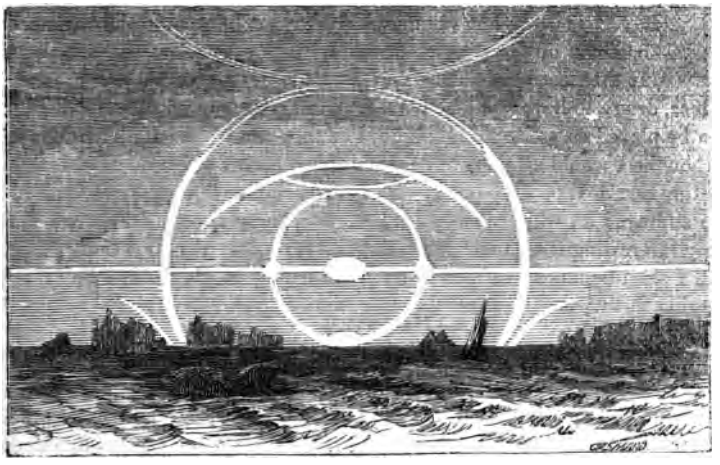
An optical illusion, very frequently encountered in the Polar Regions, causes objects to appear much larger than they really are. A fox assumes the proportions of a bear; low banks of ice appear like mountains. We fancy we see lands in the horizon, but never can approach them. The real distances of objects appear to be diminished as in the desert: we walk on, and on, but never arrive.

Another source of error is the *mirage*, which causes distant objects to appear suspended in the air, and gives rise to the strangest scenes. Scoresby perceived one day the reversed image of a ship in the air, which he recognised to be the *Fame*, commanded by his father, which had cast anchor at a place ten leagues from the spot where he was himself at that moment: this was the effect of mirage. On approaching a field of snow or ice, a band of dazzling whiteness is always perceived above the horizon—this is called the *ice-blink*. This phenomenon makes known in advance, not only the form, but also the nature of the ice the traveller approaches.

A very interesting geological fact in connection with the Arctic Regions is, that a great portion of the land is formed of coal measures—such is the case with Melville's Island, Prince Patrick's Island, &c. Under the ice which covers the soil of these isles, coal exists with all the *debris* of fossil vegetation which compose it. Therefore, during the geological epochs, the north pole of the earth was covered with the rich and abundant vegetation, the remains which now form coal; which proves that the temperature of these regions was extremely high, and superior to that of our equatorial countries. What a prodigious reduction of temperature our globe must have experienced since the geological periods.

It is a very singular contrast to see coal form the subsoil of the Polar glaciers. Suppose that human industry thought of establishing itself in those regions, it could derive from the earth the fuel necessary to warm its habita-

tions, and Nature herself thus furnishes the means of combating the rigorous climateric conditions of these inhospitable regions.



PARHELIA IN THE POLAR SEAS.

THE STOLEN DOG.

A GENTLEMAN had a good shepherd dog, which could do almost everything but talk. If every boy and girl were as faithful to perform every duty, the world would be a great gainer. One day a drover bought a flock of sheep of Coly's master, who bade Coly go along and help the man to drive them. It was thirty miles to the man's house, and he was requested when he got there to feed the dog and bid him to go home. It would have taken a good many smart men and boys to keep the flock in as good order during that long march as did that one faithful driver. The man was so pleased with his skill, that he made up his mind to keep the dog. He was to leave the country soon; so he shut him up, and tried to win his heart from his old master. But his advances met with no response. He ate the nice food given him like a sensible dog, but he watched his chances of escape as keenly as if he had been a prisoner of war at Richmond. But for days he was unsuccessful. At last a chance came, and he was not slow to improve it. "That fellow tried to steal me," he reasoned, "and I shouldn't wonder if he meant to steal all these sheep. I'll just gather them all up and take them home to my master." So he went to work, and managed to find or make an opening out into the highway, and then marched them all off in the dead of night like any other fugitive. What was the surprise of his old master to see him come home with his flock after so long an absence! He was certainly too honest a dog to enter into partnership with a thief.

GAMES AND SPORTS.

BEING in Italy last summer, I took great interest in the manners and customs of the people, especially their sports, games, and pastimes. It then occurred to me that English boys, grown tired of their old games, desire to have some new ones. Now, as many of these Italian games can be played as well by English boys as they are by the Italians themselves, I thought I would attempt to describe those I saw, and send the description to the BOY'S WONDER BOOK. So I now send some half dozen, and if they are approved of, will probably send more. These Italian games are particularly interesting from their great antiquity, no less than for their ingenuity, and I shall be much gratified if, upon returning to England, I find our boys playing them. H.

I.—THE GAME OF MORA.

Two persons place themselves opposite each other, holding their right hands closed before them. They then simultaneously and with a sudden gesture throw out their hands, some of the fingers being extended, and others shut up on the palm, each calling out in a loud voice, at the same moment, the number he guesses the fingers extended by himself and his adversary to make. If neither cry out aright, or if both cry out aright, nothing is gained or lost; but if only one guesses the true number, he wins a point. Thus, if one throw out four fingers and the other two, he who cries out six makes a point, unless the other cry out the same number. The points are generally five, though sometimes they are doubled, and as they are made they are marked by the left hand, which, during the whole game, is held stiffly in the air at about the shoulder's height, one finger being extended for every point. When the *partito* is won, the winner cries out "Fatto!" or "Guadagnato!" or "Vinto!" or else strikes his hands across each other in sign of triumph. This last sign is also used when *Double Mora* is played, to indicate that five points are made.

Nothing is more simple and apparently easy than *Mora*, yet to play it will require quickness of perception and readiness in the calculation of chances. As each player of course knows how many fingers he himself throws out, the main point is to guess the number of fingers thrown out by his opponent, and to add the two instantaneously together. A player of skill will soon detect the favourite numbers of his antagonist, and it is curious to see how remarkably clever some of them are in divining, from the movement of the hand, the number to be thrown. The game is always played with great vivacity, the hands being flung out with vehemence, and the numbers shouted at the full pitch of the voice, so as to be heard at a considerable distance. It is from the sudden opening of the fingers, while the hands are in the air, that the old Roman phrase, "*micare digitis*," to flash with the fingers," is derived.

The question arises almost invariably upon the number of fingers flashed out; for an unscrupulous player has great opportunities of cheating, by

holding a finger half extended, so as to be able to close or open it afterwards, according to circumstances; but sometimes the losing party will dispute as to the number called out. The thumb is the father of all evil at *Mora*, it being often impossible to say whether it was intended to be closed or not, and an unskilful player is easily deceived in this matter by a clever one.

When "*Tutti*" is called, all the fingers, thumbs and all, must be extended, and then it is an even chance that a discussion will take place as to whether the thumb was out. Sometimes, when the blood is hot, and one of the parties has been losing, violent quarrels will arise, which the umpires cannot decide.

No game has a better pedigree than *Mora*. It was played by the Egyptians more than two thousand years before the Christian era. From Egypt it was introduced into Greece. The Romans brought it from Greece at an early period, and it has existed among them ever since.

II.—THE GAME OF PALLONE.

One of the various kinds of the old Roman game of *Pila* still survives under the name of *Pallone*. It is played between two sides, each numbering from five to eight persons. Each of the players is armed with a *bracciali*, or gauntlet of wood, covering the hand and extending nearly up to the elbow, with which a heavy ball is beaten backwards and forwards, high into the air, from one side to the other. The object of the game is to keep the ball in constant flight, and whoever suffers it to fall dead within his bounds loses. It may, however, be struck in its rebound, though the best strokes are before it touches the ground. The *bracciali* are hollow tubes of wood, thickly studded outside with pointed bosses projecting an inch and a half, and having inside, across the end, a transverse bar, which is grasped by the hand, so as to render them manageable to the wearer. The balls, which are of the size of a large cricket ball, are made of leather, and so heavy that, when well played, they are capable of breaking the arm, unless properly received on the *bracciali*. They are inflated with air, which is pumped into them with a long syringe, through a small aperture, closed by a valve inside. The game is played on an oblong figure, marked out on the ground, or designated by the wall around the sunken platform on which it is played; across the centre is drawn a transverse line, dividing equally the two sides. Whenever a ball either falls outside the lateral boundary, or is not struck over the central line, it counts against the party playing it. When it flies over the extreme limits it is called a *volata*, and is reckoned the best stroke that can be made. At the end of the lists is a spring-board, on which the principal player stands. The best batter is always selected for this post; the others are distributed about. Near him stands the *pallonais*, whose office is to keep the balls well inflated with air, and he is busy nearly all the time Facing him, at a short distance, is the *mandarino*, who gives ball. As soon as the ball leaves the *mandarino's* hand, the chief batter runs forward to meet it, and strikes it as far and high as he can with the *bracciali*. Four times in succession have I seen a good player strike a *volata*, with the loud applause of the spectators.

When this does not occur, the two sides beat the ball backwards and forwards, from one to the other, sometimes fifteen or twenty times before the point is won; and as it falls here and there, now flying high in the air and caught at once on the *bracciali* before touching the ground, now glancing back from the wall which generally forms one side of the lists, the players rush eagerly to hit it, calling loudly to each other, and often displaying great agility, skill, and strength. The interest now becomes very exciting; the bystanders shout when a good stroke is made, and groan and hiss at a miss, until, finally, the ball is struck over the lists, or lost within them. The points of the game are fifty, the first two strokes counting fifteen each, and the others ten each. When one side makes fifty before the other has made anything, it is called a *marcio*, and counts double. As each point is made, it is shouted by the caller, who stands in the middle and keeps the count, and proclaims the bets of the spectators.

This game is as national to the Italians as cricket to the English: it is not only, as it seems to me, much more interesting than the latter, but requires vastly more strength, agility, and dexterity, to play it well. The Italians give themselves to it with all the enthusiasm of their nature, and many a young fellow injures himself for life by the fierceness of his batting. After the excitement and stir of this game, which only the young and athletic can play well, cricket seems a very dull affair.

CONFIDENCE AND MISTRUST.

A HUNTER was passing through a wood, accompanied by his son, when they became separated by a running stream of great depth. The boy wished to rejoin his father, but as the stream was too wide for him to cross it without assistance, he cut a branch off a tree, and thrusting one end into the gravelly bed of the stream, he seized hold of the other end, and with a vigorous spring attempted to vault across the water. But the branch was of an elder-tree; it broke under the boy's weight, and he disappeared beneath the surface of the water.

The boy's action had been watched from a distance by a shepherd, who, uttering a loud cry, ran to the boy's assistance. When he reached the brink of the stream the boy had reappeared, and recovering his breath, swam laughingly to the bank, where his father awaited him.

The shepherd said to the hunter:

"Thou hast instructed thy son well, but among the things you ought to have taught him you have omitted one, which is, to look beneath the surface before putting trust in a support; if he had examined the pith of the elder he would not have put confidence in its treacherous bark."

"Friend," replied the hunter, "I have sharpened his vision and exercised his strength; it is sufficient that I fearlessly let him rely on the lessons of experience; men will teach him quite soon enough to mistrust himself.—*Krummacher.*

SONG OF NATURE.

Mine are the night and morning,
The pits of air, the gulf of space,
The sportive sun, the gibbous moon,
The innumerable days.

I hide in the blinding glory;
I lurk in the pealing song;
I rest on the pitch of the torrent;
In death, new-born and strong.

No numbers have counted my tallies;
No tribes my house can fill;
I sit by the shining fount of life,
And pour the deluge still.

And ever by delicate powers
Gathering along the centuries—
From race on race, the fairest flowers,
My wreath shall nothing miss.

And many a thousand summers
My apples ripened well,
And light from meliorating stars,
With firmer glory fell.

I wrote the past in characters
Of rock, and fire the scroll;
The building in the coral sea;
The planting of the coal.

And thefts from satellites and rings,
And broken stars I drew,
And out of spent and aged things,
I formed the world anew.

What time the gods kept carnival,
Tricked out in star and flower,
And in cramp elf and saurian forms,
They swathed their too much power.

Time and thought were my surveyors,
They laid their courses well,
They boiled the sea, and baked the lands,
Of granite, marl, and shell.

But him—the man-child glorious,
Where tarries he the while?
The rainbow shines his harbinger,
The sunset gleams his smile.

My boreal lights leap upward,
Forthright my planets roll;
And still the man-child is not born,
The summit of the whole.

Must time and tide for ever run?
Will never my winds go sleep in the west
Will never my wheels which whirl the sun,
And satellites, have rest?

Too much of donning and doffing,
Too slow the rainbow fades;
I weary of my robe of snow,
My leaves and my cascades.

I tire of globes and races,
Too long the game is played;
What, without him, is summer's pomp,
Or winter's frozen shade?

I travail in pain for him,
My creatures travail and wait;
His couriers come by squadrons,
He comes not to the gate.

Twice I have moulded an image,
And thrice outstretched my hand,
Made one of day, and one of night.
And one of the salt-sea-sand.

I moulded kings and saviours,
And bards o'er kings to rule;
But fell the starry influence short,
The cup was never full.

Yet whirl the glowing wheels once more,
And mix the bowl again,
Seethe, Fate! the ancient elements,
Heat, cold, dry, wet, and peace and pain.

Let war, and trade, and creeds, and song,
Blend, ripen race on race,—
The sunburnt world a man shall breed,
Of all the zones and countless days.

No ray is dimmed, no atom worn,
My oldest force is good as new,
And the fresh rose on yonder thorn
Gives back the bending heavens in dew.

HOME AND FRIENDS.

Oh! there's a power to make each hour
As sweet as Heaven designed it;
Nor need we roam to bring it home,
Though few there be that find it.
We seek too high for things close by,
And lose what Nature found us;
For life hath here no charms so dear
As home and friends around us.

We oft destroy the present joy
For future hopes—and praise them;
While flowers as sweet bloom at our feet
If we'd but stoop to raise them!
For things afar still sweeter are
When youth's bright spell hath bound us;
But soon we are taught that earth hath naught
Like home and friends around us.

The friends that speed in time of need,
When Hope's last reed is shaken,
Do show us still that, come what will,
We are not quite forsaken.
Though all were night, if but the light
From friendship's altar crowned us,
'Twould prove the bliss of earth was this—
Our home and friends around us.

TO A CAPTIVE SEAGULL.

Bird of the wild far-sweeping wing,
Why art thou here?
Who chained thee thus, thou Ocean-King,
To earth so dark and drear?
Thy home is where the free winds sing,
And the thunder-tones of billows ring
Through caverns rocked with fear!

Did not thy proud heart burst—
Thou reckless rider of the stormy main—
When o'er thy unsullied plumage first
Was flung Man's chain?
Oh! thou whose infancy was nursed
Mid all the freedom of the skies,
How could thy spirit prize
Life e'er again?

Tempests were at thy birth, and the white waves
Sprang up rejoicing round thy rugged home;
And as a lullaby, from deep-mouthed caves
Wild ocean-songs would come,
Bathed in the breakers' foam,
Rocked into slumber on the swelling sea,
Never was wild bird's infancy
More bright or free!

No more—sad prophecy—ah! never more
Will joys like these unbind thy frozen heart.
The unreposing ocean and dark shore,
The giant cliffs, the cavern's hollow roar,
Now of thy narrow life can form no part,
All prisoned, pining, wretched as thou art!

Existence is a waste. Thy soul lies dead.
The snows upon thy wing have melted there.
Drooped is that glorious head,
Stained is that bosom once so pure and fair—
Dimmed is the broad bright eye
That looked but from the billow to the sky!

Better, far better, had thy life-blood dyed
The heaving sea;
Better thy last breath had been sighed
Where all was free.
Better that heedless waves triumphantly
Swept o'er thy pride,
Than to a lone existence thus to cling,
And hear the wild winds mock at thy unlifted wing!

CORRESPONDENCE.

PHOTOGRAPHY.

To the Rev. Dr. Primrose,

Rev. Sir,—I have lately taken to Photography, and am so delighted with my success, and the pleasure it affords me, that I think I cannot do better than communicate to your interesting Magazine the way I managed, and what it has cost me for my outfit, such information will, I am sure, be acceptable to many boys who desire to make good use of their spare time.

I was not very ambitious at starting, so I resolved to procure only such apparatus and chemicals as would enable me to take *carte de visite* portraits of my relations and friends. My leisure is confined to early morning and evening, and I find full occupation for every moment; and during these long winter evenings, I have amused myself in making a stereoscope, and mounting my stereoscopic pictures.

After consulting with Mr. Dallmeyer, the optician, I decided upon a camera of "quarter plate" size, which gives pictures 3½ inches by 4¼. An instrument of this size enables me to take not only *carte de visite* pictures, but also small vignette portraits; besides, it is not very costly, while it is easy to handle by a young beginner, while, with slight additions, I made it serve me for taking stereoscopic pictures. And I must confess these are to me the most attractive of photographic productions, and afford me the most satisfaction and pleasure.

After making many inquiries as to what I should absolutely require at starting, I purchased the following apparatus:—

	£	s.	d.
A quarter plate compound lens, for taking both portraits and landscapes, cost	1	10	0
A camera to suit, with ground glass focusing frame, and two frames for negatives	1	0	0
A tripod	0	10	0
	£3	0	0
A positive printing frame		5	0
A glass sensitizing bath		2	6
A porcelain dish for sensitizing positive paper		1	6
A porcelain dish for toning positives		1	6
A large dish, in gutta percha, 7 by 9½ inches, for hyposulphite fixing solution		3	0
Two deeper gutta percha dishes for washing proofs in		10	0
Six dozen glass plates for collodion negatives		7	6
A plate box, to hold two dozen		2	6
A wooden funnel holder		2	6
Two glass funnels, two ale glasses to hold the developing solution of iron and pyrogallic acid, a few bottles, and glass tubing		10	0
		2	6 0
	£5	6	0

CHEMICALS.

	s.	d.
Fused nitrate of silver, two ounces	8	0
Chloride of gold	2	6
Bicarbonate of soda	0	2
Hyposulphite of soda	0	6

COLLODION.

	s.	d.
Protosulphate of iron 1 lb.	0	6
Pyrogallic acid	0	6
Acetic acid	0	6
Cyanide of potassium	1	0
Negative varnish	2	6
Bottles and sundries	1	0
	0	17 2
	£6	3 2

As I had not so much cash in hand, I was obliged to save up all my pocket money for three months, and then I became the fortunate possessor of a more won-

derful and delightful instrument than a magician's wand. I also bought a little guide-book or photographic manual, for my instruction, and carefully studied it during a whole week.

Adjoining my bed room is a dressing room with a large closet, and with water "laid on." This I soon converted into a first-rate operating room, by covering the window with non-actinic yellow stuff, by which arrangement I could see to work with tolerable comfort.

I experienced an agreeable surprise in finding how simple and easy it is to cover a plate with collodion, for I had made up my mind that I must fail, and my hand trembled violently; but the coating was quite even, and I put the plate into the sensitizing bath. In fact, I succeeded better the first time than I did the second. I soon found that to make sure of success, practice is necessary; for, as the proverb says, "It is by forging that one becomes a smith."

As I have entered into all these details, I may as well proceed still farther, and I shall endeavour to sum up in a few lines, the complete method of proceeding I now employ, and indicate the quantities of chemicals, as prescribed by experienced operators.

At starting, I had no scales or weights, I took my chemicals to a neighbouring apothecary's to be weighed, who never refused me that favour.

I say to those who would follow my example:—

Clean your glass plates well with water and a little alcohol, afterwards wipe them with a piece of white linen; wash in soda, but not with soap.

Mount the lens in the camera, and the camera upon the tripod; sight an object and focus it on the ground glass, this is done by moving the glass nearer or farther from the lens, until the object selected is as clear and distinct as possible. It requires care and practice.

The sensitizing bath is composed of

Distilled water - -	12½ ounces
Fused nitrate of silver	1 ounce

Add a few drops of collodion; stir, and filter. Coat the glass plate with collodion, and immerse it in the sensitizing bath; after the lapse of two minutes, lift out the plate, place it in the dark slide of the camera, and take it out of the operating room, where it has been kept during all the preceding operations. Then putting the slide into its place in the camera, remove the shutter, uncover the lens, and expose the plate to the light that passes through the lens, and forms the picture. The exposure will vary with the state of the light and the nature of the object to be photographed; close the cap of the lens, then the shutter of the slide, and removing the slide from the camera, carry it into the darkened operating room; then holding it over a large gutta percha dish, pour over the collodion film, a little of the following solution:

Protosulphate of iron	30 grains
Water. - - - -	1 ounce
Acetic acid. - - -	30 minims

The picture soon appears. When it is fully developed, and makes no further progress in clearness and brilliancy, it is well washed, then fixed by means of the following solution:

Water - - - -	100 parts.
Cyanide of potassium	3 „

This is a violent poison, and great care must be taken that it is not absorbed by the skin, especially if it be scratched or grazed. The following, which is quite inoffensive, can be substituted for it:

Water - - - - -	1 pint.
Hyposulphite of soda	4 ounces.

The yellow white salt, in which the image is imbedded, disappears; the picture is then well washed, and a little of the following liquid poured over it.

Water - - - - -	1 ounce
Pyrogallic acid - -	2 grains
Citric acid - - - -	2 grains

to which are added, at the moment of using, a few drops of the silver sensitizing bath.

The picture increases in intensity, and when it appears strong enough, the operation is stopped. The *negative*, as the picture thus obtained is called, is next dried before the fire, varnished, and left to cool.

All these operations are extremely simple: by following them to the letter, anyone may succeed.

We now arrive at positive paper, for up to the present time, Sir, you will have remarked that the photographer has worked only for himself, never for the public.

In the first place, he must procure some sheets of albumenized paper, which may be obtained at any dealer's in photographic materials. The sheets of paper are cut nearly to the size of the dish into which the following solution is poured.

Water - - - - - -	10 ounces
Fused nitrate of silver -	2 ounces

This bath is rather costly, but it yields the best pictures. The paper, albumenized side downwards, is floated on the liquid, during the space of five minutes; it is then removed, and hung up by one corner to dry. When thoroughly dry, it is put under the negative, in the printing frame, and covered with several thicknesses of soft paper, the shutters are then put down upon it, and the pressure applied: it is turned upwards in the sunshine or diffused daylight, and left until sufficiently printed.

The printing must be continued until the picture has acquired a deep tone, but not a black: it is then removed from the printing frame and put into clean water for ten minutes, then toned in the following solution:

Water - - - -	5 ounces
Bicarbonate of soda	8 grains
Chloride of gold - -	4 grains

The picture assumes a blueish tint, which changes to violet: when it has attained to the desired tone, it is immersed in the following:

Water - - - - - -	16 ounces
Hyposulphite of soda -	4 „

where it becomes fixed in fifteen or twenty minutes. It is then washed in many fresh waters, and finally left to soak at least six or eight hours. It is then withdrawn, dried, and pasted on Bristol board.

The picture is now completed. By following the rules here laid down, any beginner can make a complete picture. Now, when he has made one he will make many, for no pursuit is more interesting or fascinating than this marvellous mode of copying nature; but it is expected that the photographer numbers *patience* among his virtues. He must not be daunted by failures, for they happen even to the most expert: when they do occur, they must be accounted for, and the cause ferretted out.

Chemical reactions—and photography is made up of them—do not admit of any qualifying: they are or they are not. Study then what can be done and what cannot be done.

In proportion as I became more familiar and more expert with elementary processes, I enlarged the circle of my experiments.

I tried the tannin process, which enables me to carry out on an excursion a number of sensitized dry plates, take my negatives on them, and develope at home.

I have obtained a box and slide, by means of which I can change my sensitized plates in the camera in the open air, without danger from the light. My box holds twenty-five plates, upon which I took five-and-twenty stereoscopic view, without one failure. And as my stock is constantly increasing, I can provide my friends with entertainment during the longest evening in winter.

I remain, Rev. Sir, yours respectfully,

C. M.

Midge Holme, Jan. 4th, 1866.

DR. PRIMROSE,

MR. EDITOR,—SIR,—Will you please to inform me of the title of a good Cyclopædia, published at such a price as a boy may purchase it out of his pocket money. I remain, Sir, yours very truly,

E. A. P.

[*Chambers's Popular Cyclopædia* is published in weekly numbers at three-halfpence.—ED.]

Twickenham, Jan. 15th, 1866.

DR. PRIMROSE.

SIR,—I should like to have your opinion as to whether smoking is injurious to the health or not. An answer will oblige.

Yours obediently,

PUFF.

[We consider smoking a foolish, dirty, and injurious practice for young persons.—ED. B. W. B.]

To the Editor of the Boy's Wonder Book.

Leeds Collegiate School, Dec. 20th, 1865.

Dr. Primrose,

Sir,—When I have completed my education I intend to emigrate to one of our Colonies, but cannot at present make up my mind whether to go to Canada, Australia, or New Zealand. Will you, Sir, be so kind as to inform me which colony is the best to emigrate to?

I remain, Sir, yours faithfully,

E. A. B.

[E. A. B. had better procure the *Government Colonization Circular*, published annually by Groombridge and Sons, Paternoster Row, Price 6d. It contains every kind of information likely to be required by the intending emigrant.—Ed. B. W. B.]

To the Editor of the Boy's Wonder Book.

Leeds Collegiate School, Dec. 14th, 1865.

Dear Sir,—Our class is to-day in a state of great excitement, for our bookseller distributed some prospectuses of your forthcoming Wonder Book among us to day, and we have devoured the bill of fare like real gluttons. If you perform only one half of what you promise you will bring out a first-rate boys' magazine, such a one as we have long desired to see in the substance and not the shadow. Wishing you success as adequate to your wishes and deserts,

I remain, Sir, yours most truly,

H. O.

Cheltenham, Dec. 21st, 1865.

Dr. Primrose.

Dear Sir,—I shall be glad to know if you will undertake the execution of any little orders or commissions for articles wanted by your subscribers. It often happens that a particular thing wanted cannot be obtained in a provincial town, and it would be a great convenience if we had some one upon whose judgment and integrity we might rely in procuring the articles required. Hoping, Sir, that you will give this matter your serious consideration and co-operation,

I beg to subscribe myself,

Your obedient servant,

M. P.

[We shall be happy to supply every kind of useful information, and to procure any article required by our subscribers, provided postage stamps or a post-office order is sent to cover the cost price, and expense of transmission by post. Letters requiring private answers must contain a stamped addressed envelope.—Ed. B. W. B.]

Winchester College, Dec. 19th, 1865.

Dr. Primrose,

Sir,—I am not so strong as most boys are at my age, and I want to know what is wrong in me that I should be different from other boys. I have heard that *training* is good to make one strong, but I do not know how to set about it, and those of whom I have inquired for information can give me no satisfaction. Perhaps, Sir, you will treat upon this subject in your magazine, if so, I beg to assure you that the articles will be devoured by

Your humble servant,

J. T.

[J. T. should read the article by Dr. Winship, in the last number of the Boys' Wonder Books, entitled "How I grew strong." We shall give the subject of health due consideration in these pages.—Ed. B. W. B.]

Jersey, Dec. 13, 1865.

Dr. Primrose,

Sir,—Will you be so kind as to inform me what kind of examination I must pass before obtaining a situation in some branch of the Civil Service, probably in the Admiralty, at Whitehall; I mean the subjects in which I shall be examined. By so doing you will greatly oblige,

Your humble servant,

D. C.

[Candidates for the Whitehall department of the Admiralty are examined in:—1. Writing from dictation. 2. Arithmetic, including Vulgar and Decimal Fractions. 3. English Composition. 4. Precis. 5. Geography. 6. English History. 7. Translation from French. 8. Translation from Latin or a second modern language.—Ed. B. W. B.]

Sutton, Jan. 9th, 1866.

DR. PRIMROSE,

SIR,—Please excuse the liberty I take, but if you have had your *carte de visite* taken, I should very much like to obtain one, for when I have seen it I shall feel more at home with you, like an old acquaintance. If my request is not polite, or at all at variance with your notions of propriety, I humbly beg you to excuse it, for I mean nothing disrespectful, on the contrary, I have the utmost respect for the Editor of a Boys' Magazine, knowing how much he must labour with hands and brains to provide boys with a book that will instruct and amuse them. I should be proud to make your acquaintance, but I am told that editors are always anonymous and invisible, and for that reason I wish, Sir, to have your *carte de visite*, which I shall esteem the brighest ornament of my album.

I am, Sir, yours obediently,

W. W.

[We regret our inability to comply with our correspondent's wish at present, as our stock of *cartes* is exhausted.—ED.]

Grammar School, Ipswich, Dec. 1st, 1865.

DR. PRIMROSE.

DEAR SIR,—I have read the Prospectus of your BOY'S WONDER BOOK, which a bookseller gave to me, and I think it a fine thing to be a boy and have such a nice book prepared on purpose for him. I presume to think, Sir, that you understand boys, that you probably have had a good deal to do with them, and know what they like best, and they will be pleased and happy to have some one that they can look up to as a "guide, counsellor, and friend." I hope, Sir, boys will find a real friend in you, for they want one very badly, at some time or other. You will hear from me again soon; meanwhile, I beg to remain,

Your obedient humble servant,

J. P.

P.S.—My father says if your magazine turns out as good as he expects and hopes it to do, he will send you a turkey for your Christmas dinner, and drink your health and "Success to the BOY'S WONDER BOOK."

Jan. 19th, 1866.

To the REV. DR. PRIMROSE.

REV. SIR,—Would you be so kind as to inform me in your columns to correspondents what is the best liquid for preserving insects after death, the way to use it, and how long an insect should be kept in it? How should they be kept after having been taken out of the liquid, in what kind of a box, and in what position they should be placed? I would also ask, Sir, what is the best way to kill an insect without injuring its form? Hoping that you will be kind enough to answer these questions, and greatly oblige,

Your obedient servant,

D. K. J.

[The best liquid for preserving insects is paraffin oil. Saturate a bit of sponge with it, and keep it constantly in the case with the insects. Phenic acid or creosote, may be substituted for the paraffin. Insects may be instantly killed by touching them with a camel's hair pencil dipped in paraffin oil, or in benzole or benzine, without injury to their forms or delicate texture.]

SAUNDERS F. NICHOLLS.—Your poem is now in the crucible. If it proves to be pure gold it will be published in our next number.

SOME of our young readers appear to misunderstand our object in inserting *Examination Papers*, to which they expected to find answers given. We must explain that in giving this feature we aim at showing boys how many things they will have to learn before they can become prepared to enter upon the business of life. The questions are to test their general knowledge of the subject upon which they treat, and before they can understand the answers that could be given, they must first study the whole subject. In undergoing an examination, the questions to which candidates must give answers are not put into their hands until the last moment. If they knew what they were beforehand, they might cram for the occasion.

EXAMINATION PAPERS.

PREPARED FOR AN EXAMINATION OF CANDIDATES FOR THE COLONIAL OFFICE.

NATURAL SCIENCE.—*Continued.*

8. Give an explanation of the tides, and account for spring and neap tides. Can you mention any local tidal peculiarities?

9. How would the present arrangement of the seasons be affected if the earth's axis—
 (1) Were perpendicular to the plane of the ecliptic?
 (2) Retaining its parallelism, were in the plan of the ecliptic?
 (3) Pointed always towards the sun?

10. Explain what is meant by the term refraction. What effect does it produce upon—
 (1) The apparent position of a star?
 (2) The horizontal diameter of the sun or moon?
 (3) The vertical diameter?

11. When light is incident on glass, into what portions is it divided? State the laws of reflection and refraction. Can you give any account of the two great hypotheses which have been framed to account for the phenomena of light?

12. Describe Herschel's telescope, and explain its advantages and disadvantages. Trace the course of a pencil of rays through it from an external point to the eye.

13. Coal has sometimes been accounted for as the result of drift by water of masses of vegetable matter, sometimes as an accumulation of such matter by growth *in situ*, What hypothesis do these views involve, and what circumstances lend probability to each view?

14. What are the usual characteristics of a mineral vein? How far is its wealth found to depend on the rock it traverses? Describe the methods adopted by the practical miner for the discovery of a lode.

15. State the law of multiple proportions, and illustrate it by means of the oxides of (1) sulphur, (2) carbon, (3) iron.

16. Show how to test a solution for silver, soda, and arsenic.

GEOLOGY.

1. Define the terms *anticlinal*, *synclinal*, *unconformable*, *strike*, and *dip*.

2. State the reasons for the division of rocks into igneous and sedimentary. What are metamorphic rocks?

3. What are the constituent minerals of granite, basalt, greenstone, gneiss, trachyte?

4. Describe the divisions of the wealden formation, and give a sketch of its distribution in England, and the reasons for looking on it as a fresh-water deposit.

5. Where are the points of division placed by geologists to separate the hypozoic, the palæozoic, the mesozoic, and the cainozoic strata? Exemplify the principles on which these divisions have been founded.

6. Coal has been accounted for sometimes as the result of drift by water of masses of vegetable matter; sometimes as an accumulation of such matter by growth *in situ*. What hypotheses do these views involve, and what circumstance lend probability to each view?

7. Give an accurate description of the stigmaria and the sigillaria, and of the facts that prove their mutual relation, with the most characteristic mode of their occurrence in the strata.

8. Describe the mountain limestone formation. How is it distributed over the world.

9. By what observations and arguments does the geologist seek to determine the period of elevation of a mountain chain? Illustrate this by some example.

10. Show that by the amount and by the characters of the distribution of organic remains in one and the same rock in different localities we may predicate facts concerning its organic and littoral deposition, pointing to the limits of the sea in which it was formed. Give illustrations of this.

11. Give a description of the most important characteristics common to the trilobites, and give a history of their distribution in time.

12. What are the usual characters of a mineral vein? How far is its wealth found to depend on the rock it traverses? Describe the methods adopted by the practical miner for the discovery of a lode.

13. Describe the structure of the ammonite, and give an account of the distribution of its species in time.

14. Trace the changes in the character of the zoology during the oolitic period, as illustrated by the reptilia and the cephalopoda.

15. Describe some of the fossils characteristic of the chalk.

16. Give a sketch of the geology of the Malvern Hills.

CHEMISTRY.

1. Define the term *element*. What elements are gaseous, what are liquids, under the ordinary conditions of the globe? What changes do these undergo by considerable alterations of such conditions?

2. State the law of multiple proportions; and illustrate it by means of the oxides (1) of nitrogen, (2) of manganese.

3. Give the chemical names of, and write in formulæ. alum, common salt, green vitriol, calomel, corrosive sublimate, and chloride of lime.

4. The equivalent of aluminium is 13.7. How much per cent. of oxygen, of sulphur, and of aluminium is contained in the anhydrous normal (or neutral) sulphate of ammonia?

5. Of what gases does the atmosphere consist? Give any *accurate* method affecting its analysis; and state the results of this analysis.

6. Explain the changes resulting from the action (1) of hydrochloric acid, (2) of strong nitric acid, (3) of very dilute nitric acid, on gold, iron, tin, and zinc respectively, and state any facts regarding the modification of the result by the purity or the alloying of any of these metals.

7. Define the terms *temperature*, *specific heat*, and *latent heat*, and the term *volume* as applied to a gas.

8. What law has been asserted connecting the specific heats of the several elements? How far is it universal?

9. What is meant by the theoretical density of carbon vapour? Within what limits is its determination true, and on what assumptions is that determination based?

10. Describe the oxides (1) of carbon, (2) of iron; and give a complete account of the most important oxides of chlorine.

11. Phosphoric acid is tribasic. Give illustrations of each type of its salts. It undergoes modifications by the action of heat.

 Under what circumstances, and what types of salts result?

12. What is meant by the *empiric* as distinguished from the *rational* formula of a substance? Illustrate each by by means of acetic acid.

13. Describe the chemical changes involved in the process called the vinous fermentation.

14. The analyst employs sulphuretted hydrogen to separate metals from each other. Into what groups does he thus divide them, and what principles are involved in the separation?

15. A solution contains lead, tin, nickel, iron, zinc, magnesia, potash with hydrochloric and nitric acids. Give in detail the process of analysing (qualitatively) such a solution.

16. Give a series of illustrations, (1) from mineral, (2) from the products of the laboratory, of isomorphism, dimorphism, allotropism, and isomerism.

CIVIL ENGINEERING.

No. 1.—*Used in a Voluntary Examination.*

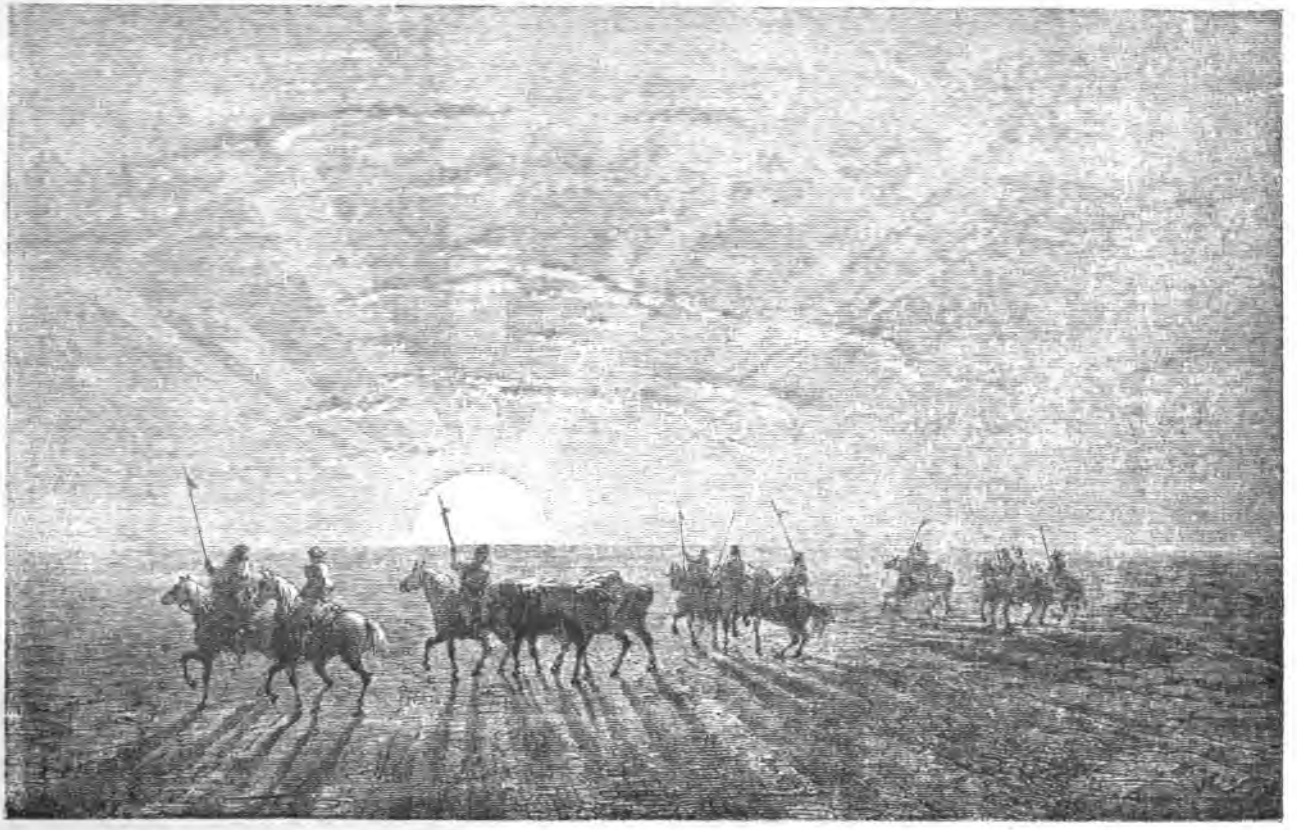
1. Describe what is meant by *parallel motion* in machinery.
2. Explain the principle upon which Nasmyth's steam hammer is designed.
3. Explain the principles upon which Bramah's hydraulic press is designed.
4. State what considerations limit the thickness of metal in a cylindrical hydraulic press.
5. Explain the principles of the construction of a Cornish engine.
6. Define the term horse power.
7. What is Tredgold's rule for the dimensions of safety valves in low-pressure engines?
8. The diameter of the cylinder of a locomotive engine is 16 inches, the length of stroke 21 inches, the driving wheel is 6 feet in diameter. What would be the force applied at the circumference of the wheel when worked to a pressure of 100lbs. per square inch?
9. State the object of the variable cut off, and of the link motion in high-pressure engines.
10. Describe a Daniel's constant battery and a Smee's battery.
11. What is an amalgamated zinc plate, and how is it prepared?
12. Show the general expression for the force of a voltaic current in a circuit in terms of the *electro-motive power of each element, the number of elements, the resistance of the liquid, the distance between the plates, and their sectional arc, the length of the connecting wire, and its sectional area.* (Olam's law.)
13. Describe the principles upon which Cooke and Wheatstone's needle instrument is founded.
14. Describe the principles upon which Morse's instrument is founded.
15. Explain the meaning of the term *induced currents.*

No. 2.—*Set to a candidate for the Admiralty, who being required to show "some proficiency in a subject comprised under one at least of the following heads:—*(1) *Latin, or a modern language.* (2.) *The leading points of English or modern history.* (3.) *Algebra, Euclid, or any branch of mathematics or science," elected to be examined in Civil Engineering as a branch of science.*

1. A beam of white pine timber, 14 in. deep, is placed on two supports 14 feet apart. A weight of 6 tons is applied at the centre. What should be the breadth of the beam to allow a deflection of $\frac{1}{40}$th of an inch to the foot?

 N.B.—The constant for white pine being ·0125.
2. What is the meaning of the term "horse-power?" And explain what is meant by the "duty" of a steam engine?
3. What is the use of the indicator card, and how is it applied?
4. What is the use of the air pump in a condensing engine?
5. What are the principles which guide engineers in designing furnaces adapted to consume smoke?
6. Describe the several indices which are in use for exhibiting pressure in boilers.
7. What is meant by parallel motion.
8. A cylindrical boiler is required to be constructed 3 ft. 6 in. in diameter, capable of resisting 100 lbs. pressure per square inch. Assuming the tenacity of iron to be 5 tons per square inch, what should be the thickness of the plates?

 (The ends need not be considered.)



THE WONDER-SMITH.

A WEIRD STORY.

CHAPTER I.

GOLOSH STREET.

GOLOSH STREET, as I will call the nameless lane, is an interesting locality. All the oddities of trade seem to have found their way thither and made an eccentric mercantile settlement. There is a bird shop at one corner, wainscoted with little cages containing linnets, waxwings, canaries, black-birds, mino-birds, with a hundred other varieties, known only to naturalists. Immediately opposite is an establishment where they sell nothing but ornaments made out of the tinted leaves of autumn, varnished and gummed into various forms. Farther down is a second-hand book stall, which looks like a sentry-box mangled out flat, and which is remarkable for not containing a complete set of any work.

There is a small chink between two ordinary-sized houses, in which a little Frenchman makes and sells artificial eyes, specimens of which, ranged on a black velvet cushion, stare at you unwinkingly through the window as you pass, until you shudder and hurry on, thinking how awful the world would be, if everyone went about without eyelids.

There are rag shops in Golosh Street that seem to have got hold of all the old nails in the Ark and all the old brass of Corinth. Madame Filomel, the fortune-teller, lives at No. 12, Golosh Street, second floor front, pull the bell on the left-hand side. Next door to Madame is the shop of Herr Hippe, commonly called the Wonder-smith.

Herr Hippe's shop is the largest in Golosh Street, and to all appearances is furnished with the smallest stock. Beyond a few packing cases, a turner's lathe, and a shelf laden with dissected maps of Europe; the interior of the shop is entirely unfurnished. The window, which is lofty and wide, but much begrimed with dirt, contains the only pleasant object in the place. This is a beautiful little miniature theatre, that is to say, the orchestra and stage; it is fitted with charmingly painted scenery, and all the appliances for scenic changes. There are tiny traps, and delicately constructed "lifts," and real foot lights fed with burning fluid, and in the orchestra sits a diminutive conductor before his desk, surrounded by musical manikins, all provided with the smallest of violoncellos, flutes, oboes, drums, and such like. There are characters also on the stage. A Templar in a white cloak is dragging a fainting female form to the parapet of a ruined bridge, while behind a great black rock on the left one can see a man concealed, who, kneeling, levels an arquebuse at the knight's heart. But the orchestra is silent; the conductor never beats the time, the musicians never play a note. The Templar never drags his victim an inch nearer to the bridge, the masked avenger takes an eternal aim with his weapon. This repose appears unnatural; for so admirably are the figures executed, that they seem replete with life. One is almost led to

believe, in looking on them, that they are resting beneath some spell which hinders their motion. One expects every moment to hear the loud explosion of the arquebuse, to see the blue smoke curling, the Templar falling, to hear the orchestra playing the requiem of the guilty.

Few people knew what Herr Hippe's business or trade really was. That he worked at something was evident, else why the shop? Some people inclined to the belief that he was an inventor, or mechanician. His workshop was in the rear of the shop, and into that sanctuary no one but himself had admission. He arrived in Golosh Street eight or ten years ago, and one fine morning, the neighbours, upon taking down their shutters, observed that No. 13, had got a tenant. A tall, thin, sallow-faced man stood on a ladder outside the shop-entrance, nailing up a large board, on which "Herr Hippe, Wonder-smith," was painted in black letters on a yellow ground. The little theatre stood in the window, where it stood ever after, and Herr Hippe was established.

But what was a Wonder-smith? people asked each other. No one could reply. Madame Filomel was consulted, but she looked grave, and said that it was none of her business. Mr. Pippel, the bird-fancier, who was a German, and ought to know best, thought it was the English for some singular Teutonic profession; but his replies were so vague, that Golosh Street was as unsatisfied as ever. Solon, the little humpback, who kept the odd-volume book-stall at the lowest corner, could throw no light upon it. And at length people had come to the conclusion, that Herr Hippe was either a coiner or a magician, and opinions were divided.

CHAPTER II.

A BOTTLEFULL OF SOULS.

It was a dull December evening. There was little trade doing in Golosh Street, and the shutters were up at most of the shops. Hippe's shop had been closed at least an hour, and the mino-birds and Bohemian wax-wings at Mr. Pippel's had their heads tucked under their wings in their first sleep.

Herr Hippe sat in his parlour, which was lit by a pleasant wood fire. There were no candles in the room, and the flickering blaze played fantastic tricks on the pale grey walls. It seemed the festival of shadows. Processions of shapes, obscure and indistinct, passed across the leaden-hued panels, and vanished in the dark corners. Every fresh blaze flung up by the wayward logs created new images. Now it was a funeral throng, with the bowed figures of mourners, the shrouded coffin, the plumes that waved like extinguished torches; now a knightly cavalcade with flags and lances, and weird horses, that rushed silently along until they met the angle of the room, when they pranced through the wall, and vanished.

On a table close to where Herr Hippe sat was placed a large square box of some dark wood, while over it was spread a casing of steel so elaborately

wrought in an open arabesque pattern, that it seemed like a shining blue lace which was lightly stretched over its surface.

Herr Hippe lay luxuriously in his arm-chair, looking meditatively into the fire. He was tall and thin, and his skin was of a dull saffron hue. Long straight hair; sharply cut regular features; a long thin moustache, that curled like a dark asp around his mouth, the expression of which was so bitter and cruel, that it seemed to distil the venom of the ideal serpent; and a bony, muscular form, were the prominent characteristics of the Wonder-smith.

The profound silence that reigned in the chamber was broken by a peculiar scratching at the panel of the door, like that which at the French court was formerly substituted for the ordinary knock, when it was necessary to demand admission to the royal apartments. Herr Hippe started, raised his head, which vibrated on his long neck like the head of a cobra when about to strike, and after a moment's silence uttered a strange, guttural sound. The door unclosed, and a squat, broad-shouldered woman with large wild oriental eyes, entered softly.

"Ah! Filomel, you are come!" said the Wonder-smith, sinking back in his chair. "Where are the rest of them?"

"They will be here presently," answered Madame Filomel, seating herself in an arm-chair much too narrow for a person of her proportions, and over the sides of which she bulged like a pudding.

"Have you brought the souls?" asked the Wonder-smith.

"They are here," said the fortune-teller, drawing a large pot-bellied black bottle from under her cloak. "Ah! I have had such trouble with them!"

"Are they of the right brand—wild, tearing, dark, devilish fellows? We want no essence of milk and honey, you know. None but souls bitter as hemlock or scorching as lightning will suit our purpose."

"You will see, you will see, Grand Duke of Egypt! They are ethereal demons, every one of them. They are the pick of a thousand births. Do you think that I don't know the squall of the demon child from that of the angel child the very moment they are born? Ask a musician how he knows, even in the dark, a note struck by Thalberg from one struck by Listz!"

"I long to test them," cried the Wonder-smith, rubbing his hands joyfully—"I long to see how the little devils will behave when I give them their shapes. Ah! it will be a proud day for us when we let them loose upon the cursed Christian children! Through the length and breadth of the land they will go; wherever our wandering people set foot, and wherever they are, the children of the Christians shall die. Then we, the despised Bohemians—the gipsies, as they call us—will be once more lords of the earth, as we were in the days when accursed things called cities did not exist, and men lived in the free woods and hunted the game of the forest. Toys, indeed! Ay, ay; we will give the little dears toys! toys that all day will sleep calmly in their boxes, seemingly stiff and wooden and without life; but at night when the souls enter them, will arise and surround the cots of the sleeping children, and pierce their hearts with their keen envenomed blades! Toys, indeed! Oh, yes, I will sell them toys!"

And the Wonder-smith laughed horribly, while the snaky moustache on his upper lip writhed as if it had truly a serpent's power and could sting.

"Have you got your first batch, Herr Hippe?" asked Madame Filomel. "Are they all ready"

"Oh, ay! they are ready," answered the Wonder-smith, with gusto—opening as he spoke, the box covered with the blue steel lacework; "they are here."

The box contained a quantity of exquisitely carved wooden manikins of both sexes, painted with great dexterity, so as to present a miniature resemblance to nature. They were, in fact, nothing more than admirable specimens of those toys which children delight in placing in various positions on the table, in regiments, or sitting at meals, or grouped under the stiff green trees which always accompany them in the boxes in which they are sold at the toy shops.

The peculiarity, however, about the manikins of Herr Hippe was not alone the artistic truth with which the limbs and the features were gifted; but on the countenance of each little puppet the carver's art had wrought an expression of wickedness that was appalling. Every tiny face has its special stamp of ferocity; the lips were thin and brimful of malice, the small black bead-like eyes, glittered with the fire of an universal hate. There was not one of the manikins, male or female, that did not hold in his or her hand some miniature weapon. The little men, scowling like demons, clasped in their wooden fingers swords delicate as a housewife's needle. The women, whose countenances expressed treachery and cruelty, clutched infinitesimal daggers, with which they seemed about to take some terrible vengeance.

"Good!" said Madame Filomel, taking one of the manikins out of the box and examining it attentively; you work well, Duke Balthazar! These little ones are of the right stamp; they look as if they had mischief in them, Ah! here come our brothers."

At this moment the same scratching that preceded the entrance of Madame Filomel was heard at the door, and Herr Hippe replied with a hoarse guttural cry. The next moment two men entered. The first was a small man, with very brilliant eyes. He was wrapt in a long shabby cloak, and wore a strange nondescript kind of cap on his head—such a cap as one sees only in the low billiard rooms in Paris. His companion was tall, long-limbed, and slender; and his dress, although of the ordinary cut, either from the disposition of colours, or from the careless, graceful attitudes of the wearer, assumed a certain air of picturesqueness. Both the men possessed the same marked Oriental type of countenance which distinguished the Wonder-smith and Madame Filomel. True Gipsys they seemed, who would not have been out of place telling fortunes, or stealing chickens in the green lanes of England, or wandering, with their wild music and their sleight-of-hand tricks, through Bohemian villages.

"Welcome, Brothers!" said the Wonder-smith; "you are in time. Sister Filomel has brought the souls, and we are about to test them. Monsieur Kerplonne, take off your cloak. Brother Oaksmith, take a chair. I promise you some amusement this evening; so make yourselves comfortable. Here is something to aid you."

And while the Frenchman, Kerplonne, and his tall companion, Oaksmith, were obeying Hippe's invitation, he reached over to a little closet let into the wall, and took thence a squat bottle and some glasses, which he placed on the table.

"Drink, brothers!" he said; "it is not Christian blood, but good stout wine of Oporto. It goes right to the heart, and warms one like the sunshine of the South."

"It is good," said Kerplonne, smacking his lips with enthusiasm.

"Why don't you keep brandy? Hang wine!" cried Oaksmith, after having swallowed two bumpers in rapid succession.

"Bah! brandy has been the ruin of our race. It has made us sots and thieves. It shall never cross my threshold," cried the Wonder-smith, with a sombre indignation.

"A little of it is not bad, though, Duke," said the fortune-teller. "It consoles us for our misfortunes; it gives us the crowns we once wore; it restores to us the power we once wielded; it carries us back, as if by magic, to that land of the sun from which fate has driven us; it darkens the memory of all the evils that we have for centuries suffered."

"It is a devil; may it be cursed!" cried Herr Hippe, passionately. "It is a demon that stole from me my son, the finest youth in all Courland. Yes! my son, the son of the Waywode Balthazar, Grand Duke of Lower Egypt, died raving in a gutter, with an empty brandy-bottle in his hands. Were it not that the plant is a sacred one to our race, I would curse the grape, and the vine that bore it."

This outburst was delivered with such energy that the three Gipsys kept silence. Oaksmith helped himself to another glass of port; and the fortune-teller rocked to and fro in her chair, too much overawed by the Wonder-smith's vehemence of manner to reply. The little Frenchman, Kerplonne, took no part in the discussion, but seemed lost in admiration of the manikins, which he took from the box in which they lay, handling them with the greatest care. After the silence had lasted for about a minute, Herr Hippe broke it with the sudden question,—

"How does your eye get on, Kerplonne?"

"Excellently, Duke. It is finished. I have it here." And the little Frenchman put his hand into his breeches pocket, and pulled out a large artificial human eye. Its great size was the only thing in this eye that would lead any one to suspect its artificiality. It was at least twice the size of life; but there was a fearful speculative light in its iris, which seemed to expand and contract like the eye of a living being, that rendered it a horrible staring paradox. It looked like the naked eye of the Cyclops, torn from his forehead, and still burning with wrath and the desire for vengeance.

The little Frenchman laughed pleasantly as he held the eye in his hand, and gazed down on that huge dark pupil, that stared back at him, it seemed, with an air of defiance and mistrust.

"It is a devil of an eye," said the little man, wiping the enamelled surface with an old silk pocket handkerchief; "it reads like a demon. My niece—the

unhappy one—has a wretch of a lover, and I have a long time feared that she would run away with him. I could not read her correspondence, for she kept her writing desk closely locked. But I asked her yesterday to keep this eye in some very safe place for me. She put it, as I knew she would, into her desk, and by its aid I read every one of her letters. She was to run away next Monday, the ungrateful! but she will find herself disappointed."

And the little man laughed heartily at the success of his stratagem, and polished and fondled the great eye until that optic seemed to grow sore with rubbing.

"And you have been at work, too, I see, Herr Hippe. Your manikins are excellent. But where are the souls?"

"In that bottle," answered the Wonder-smith, pointing to the pot-bellied black bottle that Madame Filomel had brought with her. "Yes, Monsieur Kerplonne," he continued, "my manikins are well made, I invoked the aid of Abigor, the demon of sóldiery, and he inspired me. The little fellows will be famous assassins when they are animated; we will try them to-night."

"Good!" cried Kerplonne, rubbing his hands joyously. "It is close upon New-Year's Day. We will fabricate millions of the little murderers by New-Year's Eve, and sell them in large quantities; and when the households are all asleep, and the Christian children are waiting for Santa Claus to come, the small ones will troop from their boxes and the Christian children will die. It is famous! Health to Abigor!"

"Let us try them at once," said Oaksmith. "Is your daughter, Zonéla, in bed, Herr Hippe? Are we secure from intrusion."

"No one is stirring about the house," replied the Wonder-smith, gloomily.

Filomel leaned over to Oaksmith, and said in an undertone, "Why do you mention his daughter? You know he does not like to have her spoken about."

"I will take care that we are not disturbed," said Kerplonne, rising. I will put my eye outside the door, to watch."

He went to the door and placed his great eye upon the floor with tender care. As he did so, a dark form, unseen by him or his second vision, glided along the passage noiselessly and was lost in the darkness.

"Now for it!" exclaimed Madame Filomel, taking up her fat black bottle. "Herr Hippe, prepare your manikins!"

The Wonder-smith took the little dolls out, one by one, and set them upon the table. Such an array of villanous countenances was never seen. An army of Italian bravos, seen through the wrong end of a telescope, or a band of prisoners at the galleys in Lilliput, will give some faint idea of the appearance they presented. While Madame Filomel uncorked the black bottle, Herr Hippe covered the dolls over with a species of linen tent, which he took also from the box. This done, the fortune-teller held the mouth of the bottle to the door of the tent, gathering the loose cloth closely round the glass neck. Immediately, tiny noises were heard inside the tent. Madame Filomel removed the bottle, and the Wonder-smith lifted the covering in which he had enveloped his little people.

(To be continued.)

DEAF MUTES.

THE ABBE DE L'EPEE.

IT was well said, by one who has himself been a leader in one of the great philanthropic enterprises of the day,* that, "if the truthful history of any invention were written, we should find concerned in it the thinker, who dreams, without reaching the means of putting his imaginings in practice; the mathematician, who estimates justly the forces at command, in their rotation to each other, but who forgets to proportion them to the resistance to be encountered; and so on, through the thousand intermediates between the dream and the perfect idea, till one comes who combines the result of the labour of all his predecessors, and gives to the invention new life, and with it his name."

Such was the history of the movement for the education of Deaf-mutes. There had been a host of dreamy thinkers, who had invented, on paper, processes for the instruction of these unfortunates, men like Cardan, Bonet, Amman, Dalgarno, and Lana-Terzi, whose theories in after years, proved seeds of thought to more practical minds. There had been men who had experimented on the subject till they were satisfied that the Deaf-mute could be taught, but who lacked the nerve, or the philanthropy, to apply the results they had attained to the general instruction of the deaf and dumb, or who carefully concealed their processes, that they might leave them as heirlooms to their families; among the former may be reckoned Pedro de Ponce, Wallis, and Pietro da Castro; among the latter, Pereira and Braidwood.

Yet there was wanting the man of earnest philanthropic spirit and practical tact, who should glean from all these whatever of good there was in their theories, and apply it efficiently in the education of those who, through all the generations since the flood, had been dwellers in the silent land, cut off from intercourse with their fellow-men, and consigned alike by the philosopher's dictum and the theologian's decree to the idiot's life and the idiot's destiny.

It was to such a work that the Abbé de l'Epée consecrated his life. But he did more than this; he, too, was a discoverer, and to his mind was revealed, in all its fulness and force, that great principle which lies at the basis of the system of instruction which he initiated, "that there is no more necessary or natural connection between abstract ideas and the articulate sounds which strike the ear, than there is between the same ideas and the written characters which address themselves to the eye." It was this principle, derided by the many, dimly perceived by the few, which led to the developement of the *sign language*, the means which God had appointed to unlock the darkened understanding of the Deaf-mute, but which man, in his self-sufficiency and blindness, had overlooked.

It is interesting to trace the history of such a man, to know something of his childhood, to learn under what influences he was reared, to what temptations exposed, to see the guiding hand of Providence shaping his course, subjecting him to the discipline of trial, thwarting his most cherished projects, crushing his

* M. Edouard Seguin.

fondest hopes, and all that, by these manifold crosses, he may be the better prepared for the place for which God has destined him. We regret that so little is recorded of this truly great and good man, but we will lay that little before our readers.

CHARLES MICHAEL DE L'ÉPEE was born at Versailles, November 5th, 1712. His father, who held the post of architect to the king, in an age remarkable above any other in French history for the prevalence of immorality, which even the refinement and pretended sanctity of the court and nobility could not disguise, was a man of deep piety and purity of character. Amid the lust, selfishness, and hypocrisy of the age, he constantly sought to impress upon the minds of his children the importance of truthfulness, the moderation of desire, reverence for God, and love for their fellow-men.

To the young Charles Michael, compliance with the behests of such a parent was no difficult task; naturally amiable and obedient, the instructions of his father sunk deep into his heart. At an early age he manifested that love of gooduess which made every form of vice utterly distasteful to him; and in after years, when he heard of the struggles of those who, with more violent passions or less careful parental training, sought to lead the Christian life, his own pure and peaceful experience seemed to him wanting in perfection, because he had so seldom been called to contend with temptation.

As manhood approached, and he was required to fix upon a profession, his heart instinctively turned towards a clerical life—not, as was the case with so many of the young priests of that day, for its honours, its power, or its emoluments, but because in that profession he might the better fulfil the earnest desire of his heart to do good to his fellow-men. He accordingly commenced the study of theology. Here all went well for a time; but when he sought admission to deacon's orders, he was met by unexpected opposition. To a pious mind, like that of young De l'Épée, the consistent and scriptural views of the Jansenists, not less than their pure and virtuous lives, were highly attractive; and through the influence of a clerical friend, a nephew of the celebrated Bossuet, he had been led to examine and adopt them. The diocesan to whom he applied for deacon's orders was a Jesuit; and, before he would admit him, he required him to sign a formula of doctrine which was abhorrent alike to his reason and his conscience. He refused at once, and on his refusal, his application was rejected; and though subsequently admitted to the deaconate, he was insultingly told by his superior that he need not aspire to any higher order, for it should not be granted.

It was with a saddened heart that he found himself thus compelled to forego long cherished hopes of usefulness. With that glowing imagination which characterized him, even in old age, he had looked forward to the time when, as the curate of some retired parish, he might encourage the devout, reprove and control the erring, and by his example, counsel, and prayers, so mould and influence the little community that it should seem another Eden. But an over-ruling Providence had reserved for him a larger field of usefulness, a more extended mission of mercy; and it was through the path of trial that he was to be led to it.

Regarding it as his duty to employ his time, he at length determined to enter the legal profession. He passed with rapidity through the preliminary course of

study, and was admitted to the bar. The practice of the law was not, at that time, in France, nor is it, indeed, now, invested with the high character attached to it in England. Its codes and rules bore the impress of a barbarous age; and among its practitioners, fraud, artifice, and chicanery were the rule, and honesty the rare and generally unfortunate exception.

For such a profession the pure-minded De l'Épée found himself entirely unfitted; and, abandoning it with loathing, his eyes and heart were again directed toward the profession of his choice, and, this time, apparently not in vain. His early friend, M. de Bossuet, had been elevated to the see of Troyes; and, knowing his piety and zeal, offered him a canonry in his cathedral, and admitted him to priest's orders. The desire of his heart was now gratified, and he entered upon his new duties with the utmost ardour. "In all the diocese of Troyes," says one of his contemporaries, "there was not so faithful a priest."

But his hopes were soon to be blasted. Monseigneur de Bossuet died, and, as the Jansenist controversy was at its height, his old enemies, the Jesuits, exerted their influence with the Archbishop of Paris, and procured an interdict, prohibiting him from ever again exercising the functions of the priesthood.

A severer blow could scarcely have fallen upon him. He sought not for honour, he asked not for fame or worldly renown; he had only the desire to be useful, to do good to his fellow men, and now, just as his hopes were budding into fruition, just as some result of his faithful labours were beginning to appear, all were cut off by the keen breath of adversity.

It was while suffering from depression at his unjust exclusion from the duties of his calling, that his attention was first directed to the unfortunate class to whom he was to be the future evangelist, or bringer of good tidings. Bébian thus relates the incident which led him to undertake the instruction of the deaf and dumb:—

"He happened one day to enter a house, where he found two young females engaged in needlework, which seemed to occupy their whole attention. He addressed them, but received no answer. Somewhat surprised at this, he repeated his question, but still there was no reply; they did not even lift their eyes from the work before them. In the midst of the Abbé's wonder at this apparent rudeness, their mother entered the room, and the mystery was at once explained. With tears she informed him that her daughters were deaf and dumb; that they had received, by means of pictures, a litttle instruction from Father Farnin, a benevolent ecclesiastic of the Order of 'Christian Brothers,' in the neighbourhood; but that he was now dead, and her poor children were left without any one to aid their intellectual progress. 'Believing,' said the Abbé, 'that these two unfortunates would live and die in ignorance of religion if I made no effort to instruct them, my heart was filled with compassion, and I promised that, if they were committed to my charge, I would do all for them that I was able.'"

It was in 1755 that the Abbé de l'Épée thus entered upon his great mission. Six years before, Jacob Rodrigues de Pereira had come from Spain, and exhibited, before the Academy of Science, some deaf and dumb pupils whom he had taught. They were able to speak indifferently well, and had attained a moderate degree of scientific knowledge. Pereira himself was a man of great learning, of the

most agreeable and fascinating manners, and possessed in a high degree that tact and address in which the Spanish Jews have never been surpassed. He soon made a very favourable impression upon the court, and led a pleasant life in the society of the literary men of the age.

During his residence in France, he taught some five or six mutes of high rank to speak and to make considerable attainments in science, charging for this service most princely fees, and at the same time binding his pupils to perfect secrecy in regard to his methods, which it was his intention to bequeath to his family. This intention was thwarted, however, soon after his death, by a fire which destroyed nearly all his papers, and to this day his method has remained a secret, unknown even to his children. It is certain, however, that he made no use of the sign-language, though there is some evidence that he invented and practised a system of syllabic dactylogy. Of this, the only successful effort which up to that time had been made in France to teach deaf-mutes, it is obvious that De l'Épée could have known nothing, save the fact that it demonstrated the capacity of some of this class to receive instruction. It is, indeed, certain, from his own statements, that, at the time of commencing his labours, he had no knowledge of any works on the subject. He had somewhere picked up the manual alphabet invented by Bonet in 1620; and in subsequent years he derived some advantages from the works of Cardan, Bonet, Amman, Wallis, and Dalgarno.

It was well for the deaf and dumb that he entered upon his work thus untrammelled by any preconceived theory! for he was thus prepared to adopt, without prejudice, whatever might facilitate the great object for which he had laboured. "I have not," he said, in a letter to Pereira, in which he challenged an open comparison of their respective systems of instruction, promising to adopt his should it prove to be better than his own—"I have not the silly pride of desiring to be an inventor; I only wish to do something for the benefit of the deaf mutes of all coming ages."

We have already adverted to the great principle which lay at the foundation of his system of instruction. The corollary deduced from this, that the idea was substantive, and had an existence separate from and independent of all words, written or spoken, was a startling proposition in those days, however harmless we may now regard it. But, convinced of its truth, De l'Épée set to himself the problem of discovering how this idea could be presented to the mind of the mute without words; and in their gestures and signs he found his problem solved. Henceforth his way, though long and tedious, was plain before him. To extend, amplify, and systematize the language of signs was his task. How well he accomplished his work, the records of deaf and dumb institutions in Europe and America testify. Others have entered into his labours and greatly enlarged the sign-expression, modified and improved, perhaps, many of its forms; but, because Lord Rosse's telescope exceeds in power and range the little 3-ft. tube of Galileo Galelei, shall we therefore despise the Italian astronomer? To say that his work or that of the Abbé de l'Épée was not perfect, is only to say that they were mortals like ourselves.

But it is not only or mainly as a philosopher that we would present the Abbé de l'Épée to our readers. His character was far more than this; he was, in the

highest sense of the word, a philanthropist. While Pereira, in the liberal compensation he received from French nobles for the instruction of their mute children, laid the foundation of that fortune by means of which his grandsons are now enabled to rank with the most eminent of French financiers, De l'Épée devoted his time and his entire patrimony to the education of indigent deaf mutes. His school, which was soon quite large, was conducted solely at his own expense; and, as his fortune was but moderate, he was compelled to practise the most careful economy; yet he would never receive gifts from the wealthy, nor admit to his instructions their deaf and dumb children. "It is not to the rich," he would say, "that I have devoted myself; it is to the poor only, Had it not been for *these*, I should never have attempted the education of the deaf and dumb."

In 1780, he was waited upon by the ambassador of the Empress of Russia, who congratulated him on his success, and tendered him, in her name, valuable gifts. "Mr. Ambassador," was the reply of the noble old man, "I never receive money; but have the goodness to say to her majesty, that, if my labours have seemed to her worthy of any consideration, I ask, as an especial favour, that she will send to me from her dominions some ignorant deaf and dumb child, that I may instruct him."

When Joseph II. of Austria visited Paris, he sought out De l'Épée, and offered him the revenues of one of his estates. To this liberal proposition the Abée replied: "Sire, I am now an old man. If your majesty desires to confer any gift upon the deaf and dumb, it is not my head, already bent towards the grave, that should receive it, but the good work itself. It is worthy of a great prince to preserve whatever is useful to mankind." The emperor, acting upon his suggestion, soon after sent one of his ecclesiastics to Paris, who, on receiving the necessary instructions from De l'Épée, established at Vienna the first national institution for the deaf and dumb.

A still more striking instance of the self-denial to which his love for his little flock prompted him is related by Bébian. During the severe winter of 1788, the Abbée, already in his seventy-seventh year, denied himself a fire in his apartment, and refused to purchase fuel for this purpose, lest he should exceed the moderate sum which necessarily limited the annual expenditure of his establishment. All the remonstrances of his friends were unavailing: his pupils at length cast themselves at his feet, and with tears besought him to allow himself this indulgence, for their sakes if not for his own. Their importunities finally prevailed; but for a long time he manifested the greatest regret that he had yielded, often saying mournfully, "My poor children, I have wronged you of a hundred crowns!"

That this deep and abiding affection was fully reciprocated by those whom he had rescued from a life of helpless wretchedness was often manifested. He always called them his children; and, indeed, his relation to them had more of the character of the parent than of the teacher. On one occasion, not long before his decease, in one of his familiar conversations with them, he let fall a remark which implied that his end might be approaching. Though he had often before spoken of death, yet the idea that *he* could thus be taken from them

had never entered their minds, and a sudden cry of anguish told how terrible to them was the thought. Pressing around him, with sobs and wailing, they laid hold of his garments, as if to detain him from the last long journey. Himself affected to tears by these tokens of their love for him, the good Abbé succeeded at length in calming their griefs; he spoke to them of death as being, to the good, only the gate which divides us from heaven; reminded them that the separation, if they were the friends of God, though painful, would be temporary; that that he should go before them, and await their coming—once re-united, no further separation would ever occur; while there the tongue would be unloosed, the ear unsealed, and they would be enabled to enjoy the music as well as the glories of heaven. Thus quieted, with chastened grief came holy aspiration; and it is not unreasonable to hope that the world of bliss, in after years, witnessed the meeting of many of these poor children with their sainted teacher.

It is interesting to observe the humility of such a man. The praises lavished on him seemed not in any way to elate him, and he invariably refused any commendation for his labours. "He that planteth is nothing, neither he that watereth, but God, who giveth the increase," was his reply to one who congratulated him on the success which had attended his labours.

With one incident more we must close this "record of a good man's life." Some years after the opening of his school for deaf mutes, a deaf and dumb boy, who had been found wandering in the streets of Paris, was brought to him. With that habitual piety, which was characteristic of him, De l'Épée received the boy as a gift from Heaven, and accordingly named him Theodore. The new comer soon awakened an unusual interest in the mind of the good Abbé. Though dressed in rags when found, his manners and habits showed that he had received some education; he could give no account of himself, and the Abbé, though satisfied that he had been the victim of some foul wrong, held his peace, till the mental developement of his *protégé* should enable him to describe his early home. Years passed, and, as each added to his intelligence, young Theodore was able to call to mind more and more of the events of childhood.

He remembered that his ancestral home had been one of great magnificence, in a large city, and that he had been taken thence, stripped of his rich apparel, clothed in rags, and left in the streets of Paris, The Abbé determined at once to attempt to restore his *protégé* to the rights of which he had been so cruelly defrauded; but, being himself too infirm to attempt the journey, he sent the youth, with his steward, and a fellow-pupil named Didier, to make the tour of all the cities of France, till they should find the home of Theodore. Long and weary was their journey; and it was not till after having visited almost all of the larger cities, that they found that the young mute recognized in Toulouse the city of his birth. Each of its principal streets was evidently familiar to him; and at length, with a sudden cry, he pointed out a splendid mansion as his former home. It was found to be the palace of the Count de Solar. On subsequent inquiry, it appeared that the heir of the estate had been deaf and dumb; that some years ago, he had been taken to Paris, and was said to have died there. The dates corresponded exactly with the appearance of young Theodore in Paris. As soon as possible, the Abbé and the Duke de Penthièvre commenced a lawsuit, which resulted

in the restoration of Theodore to his title and property. The defeated party appealed to the Parliament, and by continuing the case till after the death of the abbé and the duke, succeeded in obtaining a reversal of the decision, and the declaration that the claimant was an impostor. Stung with disappointment at the blighting of his hopes, young Theodore enlisted in the army, and was slain in his first battle.

The Abbé de l'Épée died at Paris on the 23rd of December, 1789, in the seventy-eighth year of his age. Had he been spared two years longer, he would have seen his school, the object of his fond cares, adopted by the Government and decreed a national support. But though this act, and the accompanying vote, which declared that it was "done in honour of Charles Michel de l'Épée, *a man who deserved well of his country,*" were creditable to the National Assembly, and the people whom they represented, yet we cannot but remember the troublous times that followed,—times in which no public service, no private goodness, neither the veneration due to age, the delicacy due to womanhood, nor the winsome helplessness of infancy, was any protection against the insensate vengeance of a maddened people; and remembering this, we cannot regret that he whose life had been so peaceful was laid in a quiet grave ere the coming of the tempest.

It is but justice, however, to the French people to say, that no name in their history is heard with more veneration, or with more profound demonstrations of love and gratitude, than that of the Abbé de l'Épée. In 1843, the citizens of Versailles, his birthplace, erected a bronze statue in his honour; and the highest dignitaries of the state, amid the acclamations of assembled thousands, eulogised his memory. In 1855, the centennial anniversary of the establishment of his school for deaf mutes was celebrated at Paris, and was attended by delegations from most of the Deaf and Dumb Institutions of Europe.

But seventy-seven years have elapsed since the death of this noble philanthropist; and already more than two hundred institutions for the deaf and dumb have been established, on the system projected by him and improved by his successors; and tens of thousands of mutes throughout Christendom, in consequence of his generous and self-denying zeal, have been trained for usefulness in this life, and many of them, we hope, prepared for a blissful hereafter. To all these the name of the Abbé de l'Épée has been one cherished in their heart of hearts; and, through all the future, wherever the understanding of the deaf mute shall be enlightened by instruction, his memory shall be blessed.

THE FISHERMEN AND THE BEARS.

A GREENLAND STORY.

THREE brothers, the eldest named Sidtliarnat, took up their winter quarters together. The season was very severe, and the sea was frozen all over, so that they could not go out in their boat. As soon as the ice would bear them, they set out to seek their living; but they could fish only in a spot far out towards the wide sea, at a place where a hole had been made in the ice.

One fine day the three brothers took with them a man who did not belong to their family, and all four proceeded to the hole in the ice. While they were fishing, Sidtliarnat observed the weather, and remarked that the wind blew the snow from the mountains towards the sea.

"The sou'-west wind is going to assail us," said he to his companions. "Let us leave off fishing, and get back home as quickly as possible."

They immediately set off running as fast as they could towards the shore; but the storm was too quick for them, and when they drew near to the land the ice had broken, and was beginning to float. They were carried swiftly away along the shore without being able to find any place where they could land. The eldest brother perceived an immense block of ice: they endeavoured to reach it, pursued by the waves, which broke up the frozen surface behind them: they gained it at last, and obtained a footing upon it. The sea all around them had now become open and free of ice.

They floated along on their ice-rock for some time; but before long they began to feel very hungry. At first they nourished themselves on some fish which the youngest had fortunately brought with him. When hunger pressed them, the elder brother, who had preserved his bag of provisions, took a fish, and cut off a piece which he ate: he then gave what was left to his younger brother, who shared it with the youngest and the stranger. They hollowed out a shelter in the rock of ice, where they laid themselves down to sleep.

One morning Sidtliarnat, when he awoke, looking carefully around the horizon as usual, at length discovered a black spot, then another bigger than the first. He immediately awoke his companions, saying,—

"Ah! we shall not have to remain at sea always: there is something black out yonder."

It was the coast, which they gradually approached. They had eaten their last mouthful of fish. They sailed along the shore for a considerable time without being able to find a place where they could land. At length they were driven by a wave upon an accessible point.

"I'll jump first," said the eldest, "and do you follow in my track."

When they had all safely landed, he said to his companions,—

"Look behind you!"

The ice-rock had disappeared, and in its place was a foaming whirlpool. Climbing the steep side of the rock they reached the summit, and then took

their way towards the south, hoping to meet with some compassionate men. They soon discovered, on a little tongue of land, a solitary cottage, but no sign of inhabitants. Their strength was completely exhausted: the eldest said,—

"Let us go in."

The others followed him.

They found in the cottage only an old man and his wife. The strangers sat down without speaking, merely looking at the old man, who asked them where they came from.

When he had heard an account of their adventures, the old man said to his wife,—

"Travellers are always hungry."

The wife went out, and soon returned with a lump of seal's flesh, which she cooked and served up on a dish. But although the travellers were almost famished, they could eat very little of it.

The old man then told them that his son, the sole support of the family, had some months previously disappeared. He asked them to stay with them, and he would adopt them, to which they consented. They passed several winters together.

One day the old man said to the eldest of the brothers,—

"What protecting genius did you select at your birth?"

Sidtliarnat replied that it was the sea-gull. The brothers, when questioned, made the same reply: but their comrade said that his parents had preferred the fox.

"Then," replied the old man, "you will never see your native country again; but the three brothers will reach their home again. When the weather becomes calm, I shall conduct them thither."

The brothers whispered together, saying,—

"How can he do that? for the ice will all be melted, and he has no kajak or other kind of boat."

One morning the old man awoke them, saying,—

"This is no time to sleep. If you really wish to return to your native country, come down with me to the sea-shore. I will assist you to cross the sea."

When they were arrived at the sea-shore, the old man threw himself into the water, dived under it, and re-appeared under the form of a bear.

"Now," said he to Sidtliarnat, "if it be true that you have the sea-gull for a protecting genius, follow me."

Sidtliarnat hesitated to throw himself into the water; but upon the bear's telling him that there were no other means of returning, he decided to risk it. As soon as his feet touched the surface, they slided along as though they were upon ice: the sea-gull was near him. At the same moment he perceived an enormous iceberg, upon which he stepped. His two brothers followed him, but their companion, in attempting to imitate their example, fell to the bottom of the sea, whereupon the bear dived down, and bringing him up again, carried him on shore.

"You will never see your country again," said the bear, "because you have the fox for protector: return to our house."

Then addressing himself to the three brothers, he said.—

"Shut your eyes close; for if you open them you will never arrive at the end of your voyage. I am going to press my head against the iceberg, and will push it along."

They could feel the iceberg moving, and after a time they experienced a shock. Then, at the bear's invitation they opened their eyes, when they saw that they were near land, and soon recognized their former home. Then they entreated the bear to accompany them home to receive tokens of their gratitude.

"I ask for no recompense," said he, "I only wished to do you a service. But if during the winter you see a bald bear, prevent your companions from shooting their arrows at him."

The brothers promised to do as he desired.

One day they were in company with their neighbours when news was brought that a bear had swum ashore. They all seized their arms, when the brothers cried out,—

"Wait a moment!"

They went out, and recognized the bear that had been described to them.

"Beware of doing that creature any harm!" said the brothers to their neighbours: "but for him we should not now be among the living. Prepare him something to eat."

They followed the bear to the house, where he seated himself in the porch, looking in at the door. They served up entire seals for his repast, and begged him to make himself at home. He did ample justice to his fare. When he had eaten his fill, he took a nap, and the children came and played around him. When he woke up again he took another feed, and then went down to the sea-side: all the people watched him until he disappeared in the distance. And from that day to this they have never seen or heard anything more of him.

THE FINGER-POST AND THE WILLOW.

"How wise I am," cried the Finger-post to a Willow-stump by his side.

"Are you," said the Willow.

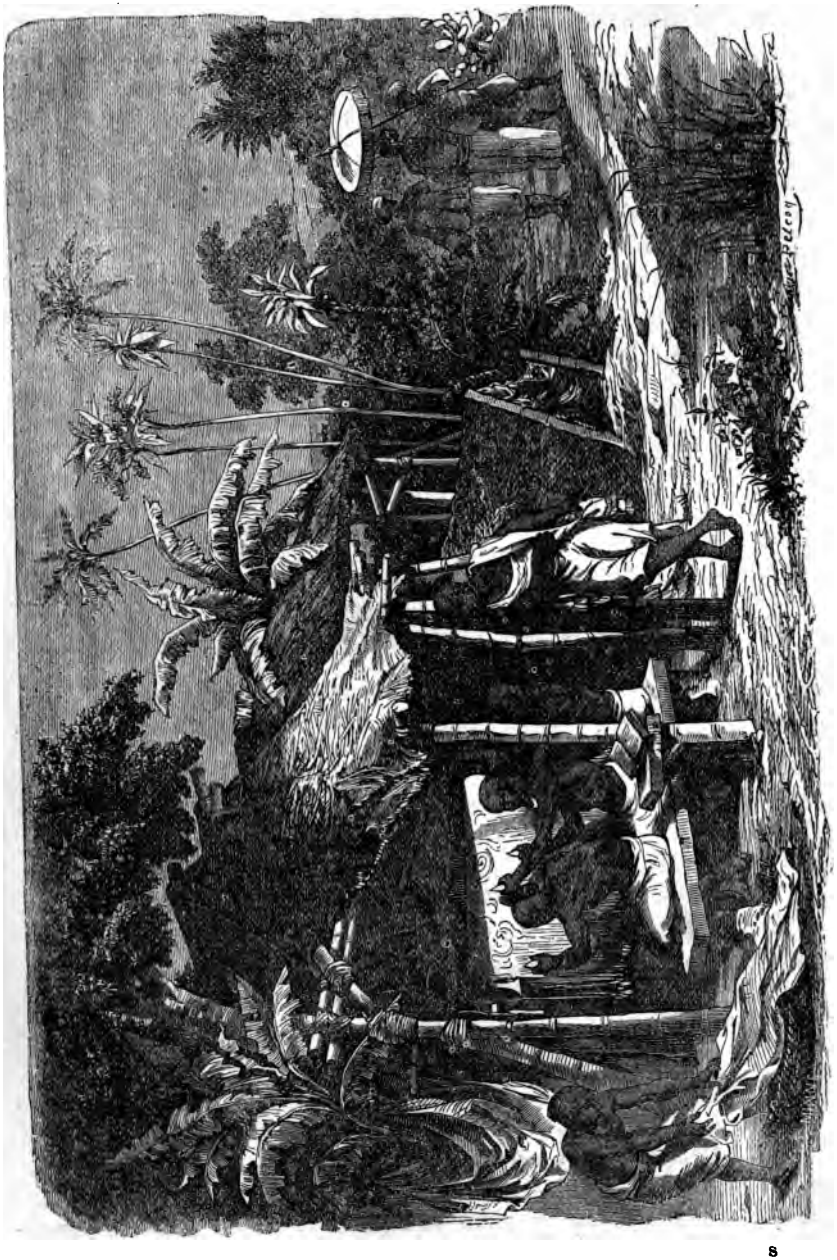
"Am I," indignantly retorted the Post. "Do you see my arms? Are not the name of the great town, the road to it, and the distance from it, plainly written there?"

"Ah, yes!" said the Willow.

"Then you must acknowledge how superior I am to you. Why, I am a public teacher."

"True indeed," answered the Willow, "and learned you are; but, as to wisdom, I see little difference between you and me. You know the way to the city, I believe, and are the means of enabling many to find it; but here you have stood these twenty years, and I don't see that you have got a step farther on the road than I have, who don't profess to understand anything about it."

CASHMERE SHAWL WEAVING.



THE CASHMERE SHAWL.

THE weaver's loom is one of the most ancient machines invented. Its origin is lost in the remoteness of time, but is probably coeval with the potter's wheel. Mankind clothed itself first in the skins of animals. Then woven fabrics became a necessity which human ingenuity soon supplied. The principle of the loom is extremely simple: it is a contrivance by which fibres or threads of various materials are interwoven so as to form a durable and uniform textile fabric, and although to meet the demands of refinement attendant upon civilization, the loom has now assumed a most complicated aspect, in principle it remains the same as at first.

The interlacing of the threads in the loom is accomplished in the following manner:—Two lines of longitudinal threads are fixed upon two frames, and stretched horizontally. These two lines may be separated parallely, so as to leave a large space between them. The weaver, by a movement of the loom, separates the series of parallel threads, and throws the shuttle, bearing the thread, which becomes placed horizontally crossed with the first, and forms a first interlacing. Another movement of the loom compresses the first two interlacings. The two parallel lines of threads again separate, the weaver again throws his shuttle to form a second line of crossed threads, and so on to the end. The threads arranged longitudinally are called the warp, and the thread held by the shuttle, and thrown transversely to the first, is called the weft.

No machine can be simpler in its action than the weaver's loom; which is the same in principle among all nations when employed for the fabrication of simple stuffs, those composed of single threads of linen, cotton, or silk.

But when ornamented or figured stuffs are woven, such as are composed of threads of several colours, or of different nature, such as mixed stuffs, the mechanical difficulties are greatly increased, and the mechanism of weaving with many threads becomes very complicated. The most perfect loom of this kind was invented by Jacquard, a mechanician, which now operates by the aid of electricity applied by Bonelli.

Singularly enough, even at the present day, some among the costliest woven productions are fabricated in looms of primitive simplicity and even rudeness. The much admired and costly Indian shawls known as Cashmeres, made in the East Indies of goats' and camels' hair, are woven by native workmen, in looms set up in the open air (*see engraving on page* 257). The shuttles are thrown by hand, and there are as many shuttles as there are colours in the pattern. The work is slow, laborious, and tedious; but the experience of the weavers and the skill of the dyers have given to their products a well-deserved popularity, notwithstanding their inherent defects. The shawls generally require to be pieced, which greatly impairs their beauty.

The ordinary shawls are from 45 inches to 50 inches in width. Three weavers work at one at the same time, seated side by side, on a bench of the same length as the cylinder, which turns upon its axis, and around which the warp

is rolled. Each weaver has sixteen shuttles at the least, which, when he is expert, he works with great velocity. Generally, the weaver who sits in the middle between the two others is the most skilful, and while performing his own task, keeps watchful eye upon the operations of his neighbours, guiding and advising them. Besides the foreman often assists himself by glancing at the pattern drawn with a pen, which represents the form of the palms he executes, for while working he only sees the very confused back of his work.

When the workman happens to be less experienced, he has near him an old manuscript, always greasy and torn, from which he learns what spindles he must throw and how many threads of the weft he must take each time.

The pattern of the Cashmere shawl is a palm leaf. The palms, like the words of a language composed of a limited number of letters or syllables, are formed of elementary figures, the various combinations of which produce their infinite variety. Children, who work under the direction of a skilful workman, are accustomed to spell the words of this language while reading it; they call out what they do, and their language is sufficiently voluble to keep pace with the velocity of the work of their hands. The teacher, who knows by heart the lesson they repeat, stops them at the least mistake, and makes them begin again.

WONDERFUL CHARACTERS.

Old Travellers.

PEREGRINATIONS OF MENDEZ PINTO.

CHAPTER III.

OUR TRAVELLING FROM MAZUA BY LAND TO THE MOTHER OF PRESTER JOHN; AS ALSO OUR RE-EMBARKING AT THE PORT OF ARQUICO, AND THAT WHICH BEFEL US BY THE ENCOUNTER OF THREE TURKISH VESSELS.

WE departed from this place with an intent to go to Arquico, the territory of Prester John, Emperor of Ethiopia; for we had a letter to deliver, which Antonio de Silvera sent to a factor of his, named Aurique Barbosa, who had been three years resident in that country, by the command of the Governor Numbo de Cunba.

When we arrived at Gottor, a league below the port of Mazua, we were all received there very courteously, as well by the inhabitants as by a Portuguese called Vasco Martin de Seixas, born in the town of Obidos, who was come thither by Henrico Barbosa's order, and had been there a month attending the arrival of some Portuguese ships.

The cause of that abode was to deliver a letter from the said Henrico, as accordingly he did to the captains of our foists; by this letter he certified the state of the Turkish army, and besought them at my hand to send him some Portuguese to induce them whereunto, he remonstrated unto them how it

much imported the service both of God and the king, and that for his own part he could not come unto them, because he was employed with forty other Portuguese, in the fort of Gileytor, for the guard of the person of the Princess of Tigremahon, mother to Prester John.

The two captains having perused this letter, communicated it to the chief of the soldiers, and sat in council upon it, where it was determined that four of them should go along with Vasco Martins to Barbosa, and that they should carry the letter which Antonio de Silvera had sent him. This was no sooner resolved than executed; for the next day three other Portuguese and myself departed accordingly, and we went by land, mounted upon good mules which the ciouascy, captain of the town, sent us by the command of the princess, the emperor's mother, together with six Abissins to accompany us.

The first night we lay at a very fair monastery, called Satilgaon; the next day before the sun rose we travelled along by a river, and by the time we had rode five leagues we arrived at a place named Bitonte, where we spent that night, in a convent of religious persons dedicated to St. Michael's; there we were very well entertained, both by the prior and the friars.

A little after our arrival, the son of Bernagais, Governor of that empire of Ethiopia, a very proper and courteous gentleman about seventeen years old, came to see us, accompanied by thirty men, all mounted upon mules, and himself on a horse furnished after the Portuguese manner; the trappings were of purple velvet trimmed with gold fringe, which two years before the Governor Numbo de Cunba sent him from the Indies by one Lopez Chanoci, who was afterwards made a slave at Grand Cairo. Whereof this young prince being notified, he despatched a Jewish merchant of Azabiba to redeem him, but as ill-fortune would have it, he died before the Jew could get thither, which so grieved this prince when he heard of it, (as the said Vasco Martins assured us,) that in the said monastery of St. Michael he caused the most honourable funeral ceremonies to be celebrated for him that ever he saw, whereat assisted above four thousand priests, besides a greater number of novices, which in their language are called santilcas.

Nor was this all, for this prince hearing that the deceased had been married at Goa, and likewise that he had left three daughters there behind him, who were very young and poor, he bestowed on them three hundred oqueas of gold, that are worth twelve crusadoes of our money apiece; a liberality truly royal, and which I relate here as well to amplify the nobleness of this prince, as that it may serve for an example to others, and render them as charitable upon like occasions.

The next morning we continued our journey, making all the haste that we possibly could, to which end we got upon good horses, that were given us by this prince; and withal he appointed four of his servants to accompany us, who during our voyage entertained us everywhere sumptuously. That day our lodging was at a goodly place, called Betenigus, which signifies a royal house; and in truth it was not without reason so named, for on whatsoever part one cast an eye, it was environed with large high trees for three leagues about; nor is it to be credited how pleasing this wood was; for it was com-

posed all of cedars, cypress, palm, date, and cocoas, like to those in the Indies. Here we passed the night with much contentment. In the morning we proceeded on our journey, and travelling often five leagues a day, we passed over a great plain, all full of ripening corn. Then we arrived at a mountain, named Vangulen, inhabited by Jews, which was ve y white and handsome. Two days and a half after, we came to a good town, called Fumbau, about twelve leagues distant from the fort of Gileytor. There we found Barbosa, and the forty Portuguese aforesaid, who received us with great demonstration of joy, but not without shedding some tears; for though they lived there at their ease, and were absolute masters of all the country, as they said, yet the consideration how they were as men banished from their country into this place did very much trouble them.

Now, because it was night when we arrived, and that we had all need of rest, Barbosa was of opinion that we should not see the emperor's mother till the next morning, which was on Sunday, the fourth of October that come, and we well refreshed, we went accompanied with Barbosa, and his forty Portuguese to the palace of the princess, where we found her at mass in her chapel. Awhile after, being notified of our arrival, she caused us to be admitted into her presence; whereupon we fell on our knees before her, and with all kinds of humility kissed the fan that she held in her hand. To these submissions we adjoined many other ceremonies according to their fashion, conformable to the instructions we had taken from the Portuguese that conducted us thither.

She received us with a smiling countenance: and to testify how much she was pleased with our coming, "Verily," said she, "you cannot imagine how glad I am to see you, that are true Christians; for it hath been a thing that I have always as much desired, as a fair garden enamelled with flowers doth the morning dew; wherefore you are most welcome. Come—and may your entrance into my house be as propitious as that of the virtuous Queen Helena's was into blessed Jerusalem."

Herewith she made us sit down upon mats, not above five or six paces distant from her; then showing herself exceedingly contented, she questioned us about certain matters, of which she assured us that she very much longed to be satisfied: first, she asked us the name of our holy father the Pope, also how many kings there were in Christendom, and whether any of us had ever been in the Holy Land. Whereupon she much condemned the Christian princes, for their neglect and want of care in seeking to ruin the power of the Turk, who, she said, was the common enemy of them all. Likewise she would know of us, whether the King of Portugal was great in the Indies, what forts he had there, in what places they were seated, and how defended. She made us many other like demands, to which we answered in the best way we could to content her; whereupon she dismissed us, and we returned to our lodgings, continued there for nine days, which we spent in waiting on this princess, with whom we had much discourse on several subjects. That term expired, we went to take leave of her; and in kissing her hands, she seemed to be somewhat troubled at our departure. "Truly," said she, "it grieves me

that you will be gone so soon; but since there is no remedy, I wish your voyage may be so prosperous, that at your arrival in the Indies, you may be as well received by yours, as the Queen of Sheba was heretofore by King Solomon in the admirable palace of his greatness."

Now, before we departed, she bestowed on us twenty-four oqueas of gold, which make two hundred and forty ducats of our money; she caused us also to be conducted by a Naique and twenty Abissins, as well to serve us for guides, and guard us from robbers, whereof that country was full, as to furnish us with provisions and horses, until such time as we got to Arquico, where our foists awaited us. This princess also sent a rich present of divers jewels of gold and stones by Vasco Martins de Seixas unto the Governor of the Indies, which by ill fortune was lost in this voyage, as shall be declared hereafter.

When we returned to the port of Arquico, where we found our companions caulking our foists, and furnishing them with all that was necessary for our voyage, we fell to work with them for the space of nine days. At length, all things being ready, we set sail, and parted from thence on Tuesday, the 6th of November, 1538. We carried with us both Vasco Martins de Seixas, that had the present, and a letter from the Princess to the Governor of the Indies, as also an Abissin bishop, who was bound for Portugal, with an intent to go from thence to Galicia, Rome, and Venice, and afterwards to travel to Jerusalem, which especially he desired to see, in regard of the holiness of the place.

An hour before day we left the port, and sailed along the coast before the wind, until such time as about noon we reached the point of the Cape of Cocam; and before we arrived at the Island of Rocks, we discovered three vessels on the other side, that seemed to us to be gelvas or terrades, which are the names of the vessels of that country; whereupon we gave them chase, and with the strength of our oars, because the wind was then somewhat down, we pursued them in such sort that in less than two hours, having got up to them, we might easily perceive them to be Turkish gallies; whereof we were no sooner assured, but that we presently betook ourselves to flight, and made towards the land with all the haste that might be, so (if it were possible) to escape the danger that inevitably threatened us: but whether the Turks suspected our design, or knew it, in less than a quarter of an hour they hoisted up all their sails, and having the wind favourable, they followed us very hard, so as in a little while getting within a small falcon shot of us, they discharged all their ordnance upon us, wherewith they not only killed nine of our men, and hurt six and twenty, but so battered our foists, that we were fain to cast a great part of our goods into the sea; meanwhile the Turks lost no time, but joined us so close, that from their poop they hurt us easily with their pikes.

Now, there were four and forty good soldiers remaining yet unhurt in our foists, who, knowing that upon their valour and the force of their arms depended the lives both of themselves and all the rest, they determined to fight it out. With this resolution they set courageously upon the admiral of three gallies, wherein was Solyman Dragus, general of the fleet; their onset

was so furious, as they invested her from poop to prow, and killed seven and twenty Janizaries; nevertheless, she being instantly succoured with fresh men by the other two gallies, which had stayed a little behind, we were so wearied and oppressed with numbers, that we were not able to make any further resistance! for of four and fifty that we were at first, there were but eleven left alive, whereof two also died the next day, whom the Turks caused to be cut in quarters, which they hung at the end of their mainyard for a sign of their victory, and in that manner carried them to the town of Mocha, whereof the father-in-law of the said Solyman Dragus that had taken us was Governor; who, with all the inhabitants, waited the coming of his son-in-law at the entry into the port, to receive and welcome him for his victory.

In his company he had a certain Cacis, who was Moulana, the chief sacerdotal dignity, and because he had been a little before on pilgrimage at the temple of their prophet, Mahomet in Mecca, he was held by all the people for a very holy man. This impostor rode up and down the town in a triumphant chariot, covered all over with silk tapestry, and with a deal of ceremony blessed the people as he went along, exhorting them to render all possible thanks unto their prophet for the victory which Solyman Dragus had obtained over us. As soon as they arrived at this place, we nine that remained alive were set on shore, tied altogether with a great chain, and amongst us was the Abissin bishop, so pitifully wounded that he died the next day, and in his end showed the repentance of a true Christian, which very much encouraged and comforted us. In the meantime all the inhabitants that were assembled about us, hearing that we were the Christians that were taken captives, being exceedingly overcome with rage, fell to beating us in that cruel manner. As for my own part, I never thought to have escaped alive out of their hands, whereunto they were especially incited by the wicked Cacis, who made them believe they should obtain the more favour and mercy from their Mahomet the worse they treated us.

Thus chained all together, and persecuted by every one, we were led in triumph over all the town, where nothing was heard but acclamations and shouts, intermingled with plenty of music, as well of instruments as voices. Moreover, there was not a woman, were she never so retired, that came not forth then to see us and to do us some outrage; for, from the very least children to the oldest men, all that beheld us pass by cast out of the windows and balconies upon us pots of filth in contempt and derision of the name of Christian, wherein every one strived to be most forward. Their cursed priest continued preaching unto them that they should gain remission of their sins by abusing us.

Having been tormented in this sort until the evening, they went and laid us, bound as we were, in a dark dungeon, where we remained seventeen days exposed to all kinds of misery, having nothing else to eat all the time but a little oatmeal, which was distributed to us every morning to serve us all the day. Sometimes they gave us the same measure in dry peas, a little soaked in water, and this was all the food we had.

CHAPTER IV.

A MUTINY HAPPENING IN THE TOWN OF MOCHA—THE OCCASION THEREOF—THAT WHICH BEFEL THEREUPON, AND BY WHAT MEANS I WAS CARRIED TO ORMUZ; AS ALSO MY SAILING FROM THENCE TO GOA, AND WHAT SUCCESS I HAD IN THAT VOYAGE.

THE next day, in regard to that, we had been so miserably mauled, and our hurts that were great but ill looked into, of us nine there died two, whereof one was named Nuno Delgado, and the other Andre Borges, both of them men of courage, and of good families. The jailor, which in their language is called "mocadan," repairing in the morning to us, and, finding our two companions dead, goes away in all haste therewith to acquaint the Gauzil, which is the Judge with us, who came in person to the prison, attended by a great many officers and other people, when, having caused their irons to be stricken off, and their feet to be tied together with a rope, he commanded them so to be dragged from thence clean through the town, where the whole multitude, to the very children, pursued and pelted them with sticks and stones, until such time as, being wearied with hurrying those poor bodies in such fashion, they cast them, all battered to pieces, into the sea. At last we seven that were left alive were chained all together, and brought forth into the public place of the town to be sold to them that would give most. There, all the people being met together, I was the first that was offered for sale, whereupon, just as the crier was offering to deliver me unto whomsoever would buy me, in comes the very Cacis Moulana, whom they held for a saint, with ten or eleven other cacis, his inferiors, all priests, like himself, of their wicked sect, and, addressing his speech to Heredrin Sofo, the Governor of the town, who sat as President of the Port-sale, he required him to send us, as an alms, into the Temple of Mocqua, saying that he was about returning thither, and having resolved to make that pilgrimage in the name of all the people, it were not fit to go thither without carrying some offering to the Prophet Noby (so they termed their Mahomet), a thing, said he, that would utterly displease Razaadat Meulana, the chief priest of Medina Talnab, who, without that, would grant no kind of grace or pardon to the inhabitants of this town, which, by reason of their great offences, stood in extreme need of the favour of God and his prophet.

The Governor having heard the Cacis speak thus, declared unto him that, for his particular, he had no power to dispose of any part of the booty, and that therefore he should apply himself to Solyman Dragus his son-in-law, who had made us slaves: so that in right it appertained only unto him to do with us as he pleased; "And I do not think," added he, "that he will contradict so holy an intention as this is."

"Thou hast reason for it," answered the Cacis; "but withal thou must know that the things of God, and the alms that are done in His name, lose their value and force when they are sifted through so many hands, and turmoiled with such humane opinions; for which very cause seldom doth any divine resolution follow thereupon, especially in a subject such as this is,

which thou mayst absolutely dispose of, as thou art sovereign commander of this people. Moreover, as there is nobody can be displeased therewith, so I do not see how it can bring thee any discontent. For besides that this demand is very just, it is also most agreeable to our Prophet Noby, who is the absolute lord of this prize, in regard that the victory came solely from his holy hand, though with as much falsehood as malice thou goest about to attribute the glory of it to the valour of thy son-in-law, and the courage of his soldiers."

At this instant a Janizary was present, captain of one of the three gallies that took us,—a man that for his exceeding valour was in great esteem amongst them, called Copa Geynal, who, nettled with that which he heard the Cacis speak, so much in contempt both of himself and the rest of the soldiers, who had carried themselves very valiantly in the fight with us, returned him this answer:—

"Certainly you might do better, for the salvation of your soul, to distribute some part of the excessive riches you possess among these poor soldiers, than seek with feigned speeches, full of hypocrisy and deceit, to rob them of these slaves, which have cost the lives of so many brave men, their fellows in arms, and have been dearly bought by us that survive, even with our dearest blood, as the wounds we have upon us can but too well testify; so can it not be said of your cabayage (a sacerdotal robe after their fashion), which for all it fits so trim and neat upon you, covers a pernicious habit you have of purloining other men's estates from them; wherefore I would wish you to desist from the damnable plot you have laid against the absolute masters of this prize, whereof you shall not have so much as a token, and seek out some other present for the Cacis of Mecqua, to the end he may conceal your thieveries and impiety, provided it be not done with the expense of our lives and blood, but rather with the goods you have so lewdly gotten by your wicked and cunning devices."

This Cacis Moulana having received so bold an answer from this captain, found it very rude, and hard of digestion, which made him in bitter terms, and void of all respects, exceedingly to blame the captain, and the soldiers that were there present, who, as well Turks as Saracens, being much offended with his ill-language, combined together and mutinied against him, and the rest of the people, in whose favour he had spoken so insolently; nor could this mutiny be appeased by any kind of means, though the governor of the town, father-in-law to the said Solyman Dragus, together with the officers of justice, did all they possibly could. In a word, that I may not stand longer upon the particulars of this affair, I say that from this trifle did arise so cruel and enraged a contention, as it ended not but with the death of six hundred persons of the one and the other side.

But at length the soldiers' party prevailing, they pillaged the most part of the town, especially the said Cacis Moulana's house, killing seven wives and nine children that he had, whose bodies together with his own were dismembered, and cast into the sea with a great deal of cruelty. In the same manner they treated all that belonged unto him, not so much as giving life to one that was known to be his.

As for us seven Portugese, who were exposed for sale in the public place, we could fine out no better expedient to save our lives than to return into the same hole from whence we came, and that too, without any officer of justice to carry us thither; neither did we take it for a small favour that the jailor would receive us into prison.

Now, this mutiny had not ceased but by the authority of Solyman Dragus, general of the gallies aforesaid; for this man with very gentle words put an end to the sedition of the people, and pacified the mutineers, which shows of what power courtesy is, even with such as are altogether ignorant of it. In the mean time, Heredrin Sopho, Governor of the town, came off but ill from this hurly-burly, by reason that in the very first encounter he had one of his arms almost cut off.

Three days after this disorder was quieted, we were led, all seven, again to the market-place, there to be sold with the rest of the booty, which consisted of our goods and ordnance, that they had taken in our foists, and were sold at a very easy rate. For myself, miserable that I was, and the most wretched of them all, fortune, my sworn enemy, made me fall into the hands of a Greek renegado, whom I shall detest as long as I have a day to live, because, that in the space of three months I was with him, he used me so cruelly, that becoming even desperate, for that I was not able to endure the evil he did me, I was seven or eight times upon the point to have poisoned myself which undoubtedly I had done, if God in his infinite mercy and goodness had not delivered me from it, whereunto I was the rather induced to make him lose the money he paid for me, because he was the most coveteous man in the world, and the most inhuman and cruelest enemy to the name of a Christian.

But at the end of three months it pleased the Almighty to deliver me out of the hands of this tyrant, who for fear of losing the money I cost him, if I should chance to make myself away, as one of his neighbours persuaded him him I would, telling him that he had discovered so much by my countenance and manner of behaviour, wherefore, in pity of me, he counselled him to sell me away, as he did, not long after, unto a Jew, named Abraham Muca, native of a town called in those quarters Toro, not above a league and a-half from Mount Simay. This man gave for me the value of three hundred reals in dates, which was the merchandise that this Jew ordinarily traded in with my late master, and so I parted with him in the company of divers merchants to go from Babylon to Cayxem, whence he carried me to Ormuz, and there presented me to Don Fernand de Lima, who was at that time captain of the fort, and to Don Pedro Fernandez, Commissary-General of the Indies, who was then residing at Ormuz, for the service of the King, by order from the Governor Numbo de Cunba. These two, namely Fernandez and De Lima, gave the Jew, in recompense for me, two hundred pardaos, which are worth three shillings and nine pence a-piece of our coin, whereof, part was their own money, and the rest was raised of the alms which they caused to be gathered for me in the town, so we both remained contented, the Jew from the satisfaction he had received from them, and I to find myself at full liberty as before.

Seeing myself by God's mercy delivered from the miseries I had endured; after I had been seventeen days at Ormuz, I embarked for the Indies in a ship that belonged to one Jorge Fernandez Taborda, who was to carry horses to Goa. In the course that we took we sailed with so prosperous a gale, that in seventeen days we arrived in view of the Port of Diu; there, by the advice of the captain, coasting along by the land to learn some news, we descried a great number of fires all that night, also at times we heard divers pieces of ordnance discharged, which very much troubled us, by reason we could not imagine what those fires, or that shooting in the night should mean; insomuch that we were divided into several opinions.

During this uncertainty our best plan was to sail the rest of the night with as little canvas as might be, until that on the next morning by favour of daylight, we perceived a great many sails, which environed the fort on all sides. Some affirmed that it was the Governor newly come from Goa, to make peace for the death of Sultan Bandur, King of Cambaya, who was slain a little before. Others said it was the Infamta, brother to the King, Dom Jovan, lately arrived there from Portugal, because he was every day expected in the Indies. Some thought that it was the Patemarca, with the King of Calicut's hundred foists of Camorin. And the last assured us, how they could justify with good and sufficient reason, that they were the Turks.

As we were in this diversity of minds, and terrified with that which we discerned before our eyes, five great gallies came forth of the midst of this fleet, with many banners, flags, and streamers, which we saw on the tops of their masts and the ends of their sailyards, whereof some were so long that they touched even the very water. These gallies, being come forth in this sort, turned their prows towards us in such a courageous and confident manner, that by their sailing we presently judged them to be Turks; which we no sooner knew to be so, indeed, but we clapped on all our sail to avoid them, and to get into the main sea, not without exceeding fear, lest for our sins we should fall into the like estate from whence I was so lately escaped. These five gallies, having observed our flight, took a resolution to pursue us, and chased us till night, at which time it pleased God that they tacked about and returned to the army from whence they came. Finding ourselves freed from so great a danger, we went joyfully on, and two days after arrived at the town of Chaul, where our captain and the merchants landed only for the purpose of visiting the captain of the fort, named Simon Guedez, unto whom they reported that which had befallen them. "Assuredly," said he, "you are very much bound to give God thanks for delivering you from one of the greatest perils that ever you were in; for without His assistance it had been impossible for you ever to have escaped it, or to tell me of it with such joy as now you do." Thereupon he declared unto them, that the army they had encountered was the very same which had held Antonio de Silvera twenty days together besieged, being composed of a great number of Turks, whereof Solyman the Bassa, Viceroy of Cairo, was general, and that those sails they had seen were fifty-eight gallies great and small, each of which carried five pieces of ordnance in her prow, and some of them were battery pieces; besides

eight other great vessels full of Turks, that were kept in reserve to succour the army, and supply the places of such as should be killed. Moreover, he added, that they had great abundance of victuals, amongst the which there twelve basilisks. This news having much amazed us, we rendered infinite praise to the Lord, for showing us such grace as to deliver us from so imminent a danger.

We stayed at Chaul but one day, and then we set sail for Goa. Being advanced as far as the river of Carapatan, we met with Fernand de Morais, captain of three foists, who by the command of the Viceroy, Dom Garcia de Noronba, was going to Dabul, to the end he might see whether he could take or burn a Turkish vessel, which was in the port laden with victuals, by order from the Bassa. This Fernand de Morais had no sooner gotten acquaintance of our ship, but he desired our captain to lend him fifteen men of twenty that he had, to supply the great necessity he was in in that way, by reason of the viceroy's hastening him away upon the sudden; which, said he, would much advance the service both of God and his highness.

After many contestations on either part upon this occasion, and which, to make short, I will pass under silence, at length they were agreed that our captain should let Fernand de Morais have twelve of fifteen men that he requested, wherewith he was very well satisfied. Of this number I was one, as being always among the least regarded.

The ship departing for Goa, Bernard de Morais, with his three foists, continued his voyage towards the port of Dabul, where we arrived the next day about nine o'clock in the morning, and presently took a Patach of Malabar, which, laden with cotton, wool, and pepper, rode at anchor in the midst of the port.

Having taken it we put the captain and pilot to torture, who instantly confessed that a few days before the ship came into that port expressly from the Bassa to lade provisions, and that there was in her an Ambassador, who had brought Hidalcan a very rich Çabaya, that is, a garment worn by the gentlemen of that country, which he would not accept of, for that thereby he would not acknowledge himself subject to the Turk, it being a custom among the Muhommadans, for the lord to do that honour to his vassal; and further, that this refusal had so much vexed the Ambassador, as he returned without taking any kind of provision of victuals, and that Hidalcan had answered, he made much more esteem of the King of Portugal's amity than of his, which was nothing but deceit, as having usurped the town of Goa upon him, after he had offered to aid him with his favour and forces to regain it. Moreover they said, that it was not above two days since the ship they spoke of parted from the port, and that the captain of her, named "Gide Ale," had denounced war against Hidalcan, vowing that as soon as the port of Diu was taken, which could not hold out above eight days, according to the estate wherein he had left it, Hidalcan should leave his kingdom, or life, and that then he should (to his cost) know how that the Portuguese in whom he put his confidence, could not avail him.

With this news Captain Morais turned towards Goa, where he arrived two

days after, and gave account to the Viceroy of that which had passed. There we found Goncallo vaz Coutinbo, who was going with five foists to Onor, to demand of the Queen thereof one of the gallies of Solyman's army, which by a contrary wind had been driven into her ports.

Now, one of the captains of those foists, my special friend, seeing me poor and necessitous, pursuaded me to accompany him in this voyage, and to that end got me five ducats pay, which I very gladly accepted, in the hope I had, that God would thereby open me a way to a better fortune. Being embarked then, the captain and soldiers, pitying the case I was in, bestowed such spare clothes as they had upon me, by which means being reasonably well priced up again, we parted the next morning from the road of Bardees, and the Monday following we cast anchor in the port of Onor, where, that the inhabitants of the place might know how little the account we made of that mighty army, we gave them a great peal of ordnance, putting forth all our fifes, beating our drums, and sounding our trumpets, to the end that by these exterior demonstrations they might conclude we regarded not the Turks a whit.

(To be continued.)

AN OLD LEGEND—FOR THE YOUNG.

The snow came falling fast and fair,
 Down through the wintry night;
The Christmas lights shone everywhere,
 The city streets were bright;
And loud the sweet cathedral bells
 Chimed praises and delight.

But out amid the falling snow,
 Forsaken and alone,
A little child went wandering slow
 And making piteous moan;
For his father and his mother dear
 Up into heaven were gone.

He saw the fruitful Christmas-trees
 Spread out their gracious boughs:
He saw between the curtains red
 The children's shining brows,
And the little Christ-child sitting high
 To hear their thankful vows.

Then loud he cried, and sobbed full sore:
 No mother dear had he
To fill his apron from her store,
 And take him on her knee.
He cried till a rich woman heard,
 And came outside to see.

"O lady! give me fire and food,
 I am so starved and cold!
Please do the little orphan good,
 For God has sent you gold!"
But she said, "Begone, thou beggar boy!
 My house no more can hold."

She shut him out into the night,
 And went among her own;
She sat upon a cushion bright,
 He on the stepping-stone,
And his tears made little drops of ice
 As he sat there alone.

But down the wide and snowy street
 He saw another child,
With silver sandals on his feet,
 Float through the tempest wild,
His snow-white garments shining fair,
 As if a sunbeam smiled.

Right onward to the orphan lad
 Down the wide street he came,
And in a voice full sweet and glad
 He called him by his name,
And the little weary child grew warm,
 Forgetting pain and shame.

"Thou hast no home, thou little one,
 But thou shalt go with me:
I saw thee sitting all alone,
 And I came after thee.
Now, look up to the heavens above,
 Behold thy Christmas tree!"

The boy looked up to heaven above,
 His tears forgot to flow;
For the Christ-child with his looks of love
 Had charmed away the snow,
And on a tree all set with stars
 Angels went to and fro.

"Come up! come up, thou little boy!
 Come up to heaven on high;
Thy Christmas-tide shall dawn in joy."
 He clasped him lovingly,
And the Christ-child and the orphan lad
 Kept Christmas in the sky.

THE POOR WOMAN.

It snows! it snows! and yonder at
God's porch,
Upon her knees, a woman old doth
pray;
While through her rags the north-
east cold doth scorch;
It is for bread she prayeth day
by day,
Groping alone through the cathedral
yard,
Winter and summer season cometh,
she,
Poor woman! she is blind. O for-
tune hard!
Let us bestow on her our charity!

Remember ye what this old wretch
has been,
With her poor cheeks so meagre
and so white?
Once was she of our theatre the
queen,
Her songs the town enraptured
with delight.
The young, amid their laughter and
their tears,
Of her great beauty raved enthu-
siastically;
And all their charmèd dreams re-
flected hers:
Let us bestow on her our charity!

How many times, along the home-
ward street,
Her chariot's speed could scarce
outrun the crowd;
Above the clatter of her horses'
feet,
She heard the echoes of applauses
loud.
To hand her from her carriage to
her door,
To tend her every pace volup-
tuously,
How many rivals watch'd her steps
before!
Let us bestow on her our charity!

When all the Arts were wreathing
crowns for her,
How full of pomp was her high
dwelling-place!
How many crystals, bronzes, co-
lumns were
As loving tribute brought, her
love to grace;
How many poet-lovers, at her
feasts,
Quaff'd of the cup of her pros-
perity!
Your palaces have all their swallow-
nests!
Let us bestow on her our charity!

Oh sad reverse! an illness bowed
her head,
Broke her sweet voice, and dimm'd
her beauty's sheen;
And soon, alone and poor she begg'd
her bread,
Where for these twenty years her
place hath been.
No hand knew better how to scatter
gold,
Or with more goodness than this
hand which she
So hesitatingly to us doth hold.
Let us bestow on her our cha-
rity!

The cold grows colder; woe and
misery!
See, now the cold is stiffening
every limb;
Her fingers scarce can lift the
rosary
That blesses her wan lips with
smiles so dim.
Under so many ills if her poor
heart
Is able yet to feed on piety,
That her last trust in Heaven may
not depart,
Let us bestow on her our cha-
rity!

THE SINGER.

A star into our twilight fell,
'Mong peasant homes in vales remote;
Men marvelled, nor till all the dell
Was waked as by a bugle note,

They wondered at the wild-eyed boy,
And drank his song like draughts of
wine,
And yet, amid their new-born joy,
They bade him tend the herds and
swine.

But he knew neither swine nor herds—
His shepherd soul was otherwhere;
The flocks he tended were the birds,
And stars that fill the folds of air.

To sweeter song the wind would melt
That fanned him with its perfumed
wing;
Flowers thronged his path as if they felt
The warm and flashing feet of Spring.

The brooklet flung its ringlets wide,
And leapt to him, and kept his pace,
Sang when he sang, and when he sighed,
Turned up to him its starry face.

Through many a dawn and noon and night,
The singing boy still kept his course;
For in his heart that meteor light
Still burned with all its natal force.

He sang, nor cherished thought of care,
As when, upon the garden vine,
A blue-bird thrills the April air,
Regardless of the herds and swine.

The children in their May-time plays,
The maidens in their rosy hours,
And matrons in their autumn days,
All heard and flung him praise or flowers.

And age, to chimney-nooks beguiled,
Caught the sweet music's tender closes,
And, gazing on the embers, smiled
As on a bed of summer roses.

And many a heart, by hope forsook,
Received his song through depths of pain,
As the dry channels of a brook
The freshness of a summer rain.

But when he looked for house or bread,
The stewards of earth's oil and wine
Shook sternly the reproving head,
And bade him tend the herds and swine!

He strayed into the harvest plains,
And 'mid the sultry wind rows sung,
Till glowing girls and swarthy swains
Caught music from his charm'd tongue,—

Caught music that from heart to brain
Went thrilling with delicious measure,
Till toil, which late had seemed a pain,
Became a sweet Arcadian pleasure.

The farmer, at the day's decline,
Sat listening till the eve was late;
Then, offering neither bread nor wine,
Arose and barred the outer gate—

And said, "Would you have where to sleep
On wholesome straw, good brother mine?
You need but plough, and sow, and reap,
And daily tend the herds and swine."

The poet's locks shook out reply,
He turned him gaily down the rill;
Yet left a light which shall not die,
A sunshine on the farmer's sill.

He strewed the vale with flowers of song;
He filled the homes with lighter grace;
Which round those hearth-stones lingered long,
And still makes beautiful the place.

The country hamlet and the town
Grew wiser, better for his songs;
The roaring city could not drown
The voice that to the world belongs.

To beds of pain, to rooms of death,
The soft and solemn music stole,
And soothed the dying with its breath,
And passed into the mourner's soul.

And yet what was the poet's meed?
Such Bard of Alloway, was thine!
The soul that sings, the heart must bleed,
Or tend the common herds and swine.

The nation heard his patriot lays,
And rung them, like an anthem, round,
Till freedom waved her branch of bays,
Wherewith the world shall yet be crowned.
His war-songs fire the battle-host,
His mottoes on their banners burned;
And when the foe had fled the coast,
Wild with his songs the troops returned.

Then at the feast's triumphal board,
His thrilling music cheered the wine:
But when the singer asked reward,
They pointed to the herds and swine.

"What! he a bard? Then bid him go
And beg: it is the poet's trade!
Dan Homer was the first to show
The rank for which the bards were made!

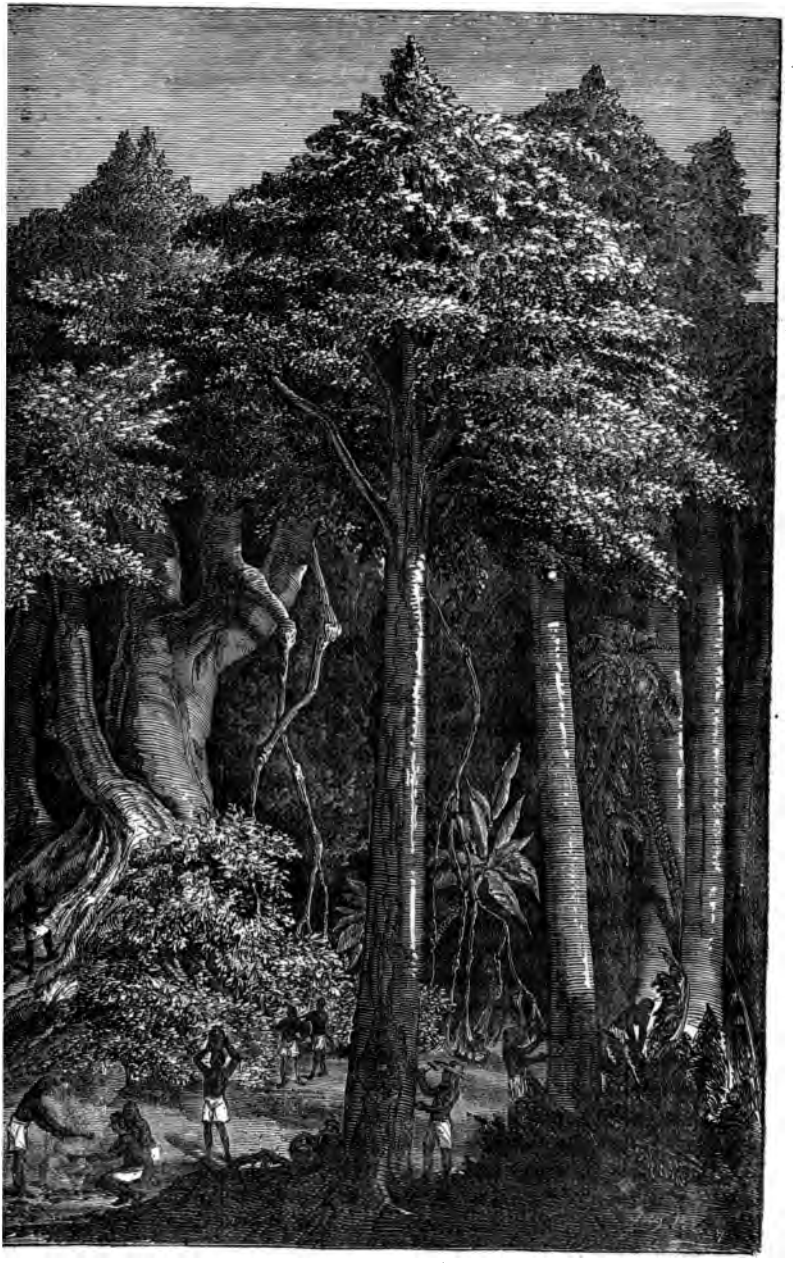
"A living bard! What's he to us?
A bard, to live, must first be dead!
And when he dies we may discuss
To whom belongs the poet's head!"

'Neath suns that burn, through storms that drench,
He went, an outcast from his birth,
Still singing—for they could not quench
The fire that was not born of earth.

At last, behind cold prison bars,
By colder natures unforgiven,
His frail dust starved! but mid the stars
His spirit found its native heaven.

Now, when a meteor-spark, forlorn,
Descends upon its fiery wing,
I sigh to think a soul is born,
Perchance to suffer and to sing.

Its own heart a consuming pyre
Of flame, to brighten and refine—
A singer, in the starry choir.
That will not tend the herds and swine.



PREPARING CAOUTCHOUC OR INDIA RUBBER.

T

CAOUTCHOUC.

CAOUTCHOUC, or, as it is commonly called, india-rubber, is an organic substance contained in the juices of various plants which grow in South America. It exists in these juices under the form of little globules in suspension in a watery liquid, just as the globules of butter are held in suspension in milk. If this milky juice be left to itself, the globules of caoutchouc rise to the surface as cream rises to the surface of milk when left standing. But in milk and the emulsions produced by fats, the matter which collects at the surface of the aqueous liquor is a fatty body, while the globules of caoutchouc have nothing in common with a fatty matter. It is a peculiar substance, whose curious and useful properties we now proceed to describe.

While in the plant that contains it caoutchouc is liquid, but it changes its consistency when separated from it. At first soft and thick, it soon acquires, under the influence of the air, the colour, appearance, and consistency of leather. While at the ordinary temperature it is elastic, it becomes as rigid as wood at a temperature some degrees below freezing point. It softens at the temperature of boiling water (212°) without change, and two freshly-cut pieces closely unite together again. At 150° it changes into a viscid matter, which does not again assume the primitive properties of caoutchouc again upon cooling. Placed in contact with water, caoutchouc absorbs the fourth of its weight of that liquid; it then becomes as white and opaque as porcelain. Ether, sulphide of carbon, the liquid carbides of hydrogen, and fatty bodies dissolve a portion of the caoutchouc submitted to their action. With sulphur caoutchouc forms a very important compound, which we shall presently describe.

Caoutchouc has been for a very long time employed by the natives of America and Asia, but it was not known in Europe until the close of the last century. The celebrated traveller and naturalist, Condamine wrote, in 1751, the first scientific description of this substance, and Tresneau, the engineer, first discovered the tree that produces it in French Guiana.

In the East Indies caoutchouc is obtained from the elastic fig tree (*ficus elastica*), a common tree in Assam. Large quantities of caoutchouc are also imported from Java. In America, in Brazil and Guiana, it is extracted from the *siphonia catrucha*. The consumption of Brazilian caoutchouc in Europe is ten times as much as that obtained from the East Indies.

To procure the caoutchouc, the Indians or Brazilians make, from May to September, once a week, a number of incisions in the truuk of the tree. The milky juice flows out, and is collected on large leaves, or in calabashes. The product appears in commerce in large rough prisms, which are obtained by the natives by causing the juice to flow into trenches dug in the soil, where it coagulates. The Brazilians also collect it on moulds of plastic clay, repre-

senting pyramidal masses, figures of animals, the human foot, &c. These coarse moulds are dipped several times in the caoutchouc a little thickened, and when the deposit is sufficiently abundant, they are left to harden; then, breaking the mould and removing the clay from the inside by means of the neck of a bottle, or by repeated blows, or a simple washing in water.

It often happens that the pyraform masses or *pears* of caoutchouc have the outer coating imperfectly united with the under one; that they contain impurities, such as sand and vegetable refuse, arising from the moulds employed by the natives, and particularly from their fraudulent manœuvres. It is therefore necessary to purify the caoutchouc before employing it. To this end, it is submitted to the action of cylinders armed with teeth turning in opposite directions with unequal velocities. By introducing into the apparatus a small stream of water, the foreign matters crushed by the roller are removed gradually, and the pieces of purified caoutchouc unite with each other. The softened caoutchouc soon forms a homogeneous mass, which is delivered under the form of a rectangular block, and put into moulds, it is submitted to a strong pressure. By means of rapidly moving knives, sheets as thin as may be desired are removed from the blocks.

Mackintosh, of Glasgow, in 1820, succeeded in dissolving caoutchouc and spreading it between and upon various fabrics, to render them water-proof, and this was the principal use to which this substance was applied for many years.

To *vulcanize* caoutchouc is to submit it to the action of sulphur with the view of greatly increasing its elasticity. The operation is performed in various ways. The sheets of caoutchouc may be immersed in melted sulphur, or they may be kneaded with sulphur in a state of powder. Chloride of sulphur, bromide of sulphur, or polysulphide of potassium are also capable of vulcanizing caoutchouc. But whatever be the method employed, one point is essential, and that is, to raise the temperature to 280° or 300°.

After the first operation, that is, the simple sulphuration, the mixture still retains all the properties of unaltered caoutchouc; the property of hardening by cold and softening by heat, and of reuniting when the sections are recently made, of dissolving in ether, oil of turpentine, &c. But after the second operation, during which the temperature is raised to 300°, this substance has acquired new properties which are valuable in a host of applications in the arts and manufactures. It will no longer dissolve in the liquids above named, but only becomes impregnated and swelled by contact with them. It will no longer reunite with itself when cut, and it will resist without alteration a temperature which would convert ordinary caoutchouc into a kind of pitch: a considerable lowering of temperature does not deprive it of its elasticity.

The applications of vulcanized caoutchouc are immense. Buffers for machines to avoid shocks are made of it; piston rings for the cylinders of steam-engines; valves for various kinds of pumps; shoes; gloves; bands to suspend hospital beds; rollers for printing machines; surgical apparatus, threads, springs, balls, balloons, dolls' heads, &c., are some among its numerous uses.

By continuing the vulcanization a compound is produced which resembles horn, whalebone, tortoise-shell, and of which a host of useful applications is made.

Various fabrics are rendered waterproof by coating the two inner surfaces with a solution of caoutchouc, and then submitting them to pressure.

SHIPWRECK AND CAPTIVITY OF CAPTAIN JOHN RILEY.

CHAPTER VII.

SUFFERINGS OF THE CREW, AND MANNER OF CLIMBING OVER THE ROCKS ALONG THE SEA SHORE, UNDER HIGH CLIFFS.—REACHING THE SURFACE OF THE DESERT.—MEETING WITH A COMPANY OF WANDERING ARABS, BY WHOM WE ARE SEIZED AS SLAVES, AND STRIPPED NAKED.

UPON the morning of September the 8th, as soon as it was light, being much refreshed by our undisturbed sleep, we agreed to leave all we had that was cumbrous or heavy, and try to make our way to the eastward, in hopes of finding a place, whilst we had yet strength remaining, to dig for water, or to get to the surface of the land above us, where we hoped to find some herbage or vegetable juice to allay, in some degree, our burning thirst, which was now rendered more grievous than ever, by our eating a few mussels that were found on the rocks, and extremely salt.

Having agreed to keep together, and to render each other mutual assistance, we divided amongst us the little water we had, every one receiving his share in a bottle, in order to preserve it as long as possible: then taking a small piece or two of pork, which we slung on our backs, either in a spare shirt or a piece of canvas, leaving all our clothes but those we had on, and our jackets, we bent our way towards the east.

Before starting I had buried the bag of dollars, and induced each man to throw away every one he had about him, as I was convinced that money had been the cause of our former ill treatment, by tempting the natives to practise treacherous and cruel means, in order to extort it from us.

We proceeded now, as well as we were able, along close to the water side. The land was either nearly perpendicular, or jutting over our heads, rising to the height of from five to six hundred feet, and we were forced to climb over masses of sharp and craggy rocks, from two to three hundred feet in height, then to descend again by letting ourselves down from rock to rock, until we reached the water's edge; now waiting for a surf to retire, while we rushed one by one past a steep point up to our necks in the water, to the rocks more favourable on the other side, where by clinging fast hold, we kept ourselves from being washed away by the next surf, until, with each other's assistance, we clambered up beyond the reach of the greedy billows.

The beating of the ocean, and the force of the currents against this coast, had undermined the precipices in such a manner, that vast masses of rock, gravel, and sand, had given way, and tumbled to the shore.

Rocks falling on rocks had formed chasms, through which we were forced to pass at times, for a long distance, and surmounting one obstacle, seemed, only to open to our view another and a more dangerous one.

At one place, we were obliged to climb along on a narrow ledge of rocks, between forty and fifty feet high, and not more than eight inches broad; those at our backs were perpendicular, and a little higher up, huge pieces that had been broken off from near the surface, and stopped on their way down by other fragments, seemed to totter, as if on a pivot, directly over our heads; whilst the least slip must have plunged us into the frightful abyss below, where the foaming surges would instantly have dashed us to pieces against the rocks.

Our shoes were nearly all worn off; our feet were lacerated and bleeding; the rays of the sun beating on our emaciated bodies, heated them, we thought, nearly to dissolution; and under these towering cliffs, there was not a breath of air to fan our almost boiling blood. I had, in crawling through one of the holes between the rocks, broken my bottle, and spilled the little water it contained, and my tongue cleaving to the roof of my mouth, was as useless as a dry stick, until I was enabled to loosen it by a few drops of my more than a dozen times distilled urine.

Thus passed this day with us, and when night came on, it brought with it new distresses. We had advanced along the coast not more than about four miles this day, with all the exertion we were capable of, without finding any change for the better in our local situation, whilst our strength was continually diminishing, and no circumstance occurred to revive our hopes.

We had seen this day, however, on the broken rocks, several locusts, which we took to be grasshoppers, and concluded, if we could once reach the surface, we should find herbage, at least, to feed on. These locusts were dead, and crumbled to dust on the slightest touch.

About one hundred feet from the sea, under a high cliff, we found now a good place in the sand to sleep on; here we greased our mouths by eating a small piece of salt pork, and wetted them as usual with a sip of urine. All hands, except myself, had a little fresh water left; my comrades knew I had not one drop, and two of them offered to let me taste of theirs, with which I just moistened my tongue, and after sending up our prayers to heaven for mercy and relief in our forlorn and desolate condition, we laid ourselves down to sleep.

I had, on setting out from home, received Horace Savage under my particular charge from his widowed mother: his father, when living, having been my intimate friend, I promised her to take care of him, as if he was my own son, and this promise I had endeavoured to fulfil. He was now in deep distress, and I determined within myself that I would adopt him as my son, for his mother was poor; that I would watch over his ripening years, in case we both lived, and if fortune should favor me in future, that he should share it

in common with my children. I now took him in my arms, and we all slept soundly till morning, though the change was so great in the night, from extreme heat to damp cold air that we awoke in the morning (September 9th.) with benumbed and shivering limbs. Sleep, however, had refreshed us, and though our feet were torn, and our frames nearly exhausted, yet we drove away despair, and set forward on our journey.

We soon discovered at no great distance ahead a sand beach that appeared large, and from which the shore upward seemed more sloping, as if opening a way to the surface above it; we also thought we should be able, in case we could reach the beach, to get water that would be drinkable by digging in the sand down to a level with the water in the sea, and letting it filter into the hole. This I had done on the Little Keys of the Bahama Bank with success, and expected it would be the same here.

So we made our way slowly along as we had done the day before until we got within a short distance of this beach, where we met with a promontory of rocks, which rose in height even with the surface above us, jutting far into the sea, whose waves had worn in under its base to the distance of fifty or one hundred feet, and now dashed in a wild and frightful manner against the projecting points which its washings for ages had formed underneath.

To climb over this formidable obstruction was impossible; to get around it through the water appeared equally so, as there was not sufficient time, by the greatest exertion, to pass before the return of the surf, which would inevitably hurl the adventurer into the cavities under the cliff, among the sharp rocks, where he must immediately perish.

Thus far we had all got safe. To advance by what appeared to be the only possible way seemed like seeking instant death; to remain in our present situation was merely to die a lingering one; and to return was still worse, by increasing our pains without leading to any chance of relief. Before us was a prospect of getting water, and arriving at the summit of the land, if we could only get round the promontory alive; and, fortunately, at this moment we observed a rock about half-way across this point that had tumbled down from above, and had been washed full of holes; it was covered by every surf, and its top left bare as the wave receded. I imagined I could reach it before the wave came in; and after making known my intentions to my companions, I followed the surf out, and laid hold of the rock just as the returning swell overwhelmed me.

I clung to it for my life, the surf passing over me, and spending its fury among the crags: the instant it retired, I hurried on to the steep rocks beyond the point, where I again held on, while another surf swept over me, and then left me to clamber up as quick as I was able on the flat surface of the rock beyond the reach of the waves. The tide was not yet entirely out, though I had judged it was, and as it continued to fall, my people, following the same course, and embracing the same means, all got safe to the first rock, and from thence to the place where I lay prostrate to receive and assist them in getting up.

Though our limbs and bodies were very much bruised in this severe

encounter, yet we felt somewhat encouraged, and made for the sand beach as fast as we were able. We soon reached it, and began digging in the sand for water at different distances from the sea, but found it to be as salt as the ocean.

After digging several holes farther off, and meeting with dry rock instead of water, I pitched upon a spot for our last effort, and while the others were digging, I told them I would go and see if I could get up the bank, and if I succeeded that I would return in a short time with the news: the bank here rose abruptly, leaving, however, in some places, sufficient slope for a man to ascend it by climbing.

Through one of these slopes I made my way up, in the hope of finding some green thing that might help to allay our burning thirst, and some tree to shelter us from the scorching blaze of the sun; but what was my surprise when I came to the spot so long desired, and found it to be a barren plain, extending as far as the eye could reach each way, without a tree, shrub, or blade of grass, that might give the smallest relief to expiring nature! I had exerted myself to the utmost to get there; the dreary sight was more than I could bear; my spirits fainted within me, and I fell to the earth, deprived of every sensation. When I recovered, it was some time before I could recollect where I was: my intolerable thirst, however, at length convinced me, and I was enabled to administer the same wretched and disgusting relief to which I had so frequently before been compelled to resort.

Despair now seized upon me, and I resolved to cast myself into the sea as soon as I could reach it, and put an end to my life and miseries together. But when I the next moment reflected that I had left ten of my fellow creatures on the shore, who looked up to me for an example of courage and fortitude, and for whom I still felt myself bound to continue my exertions, which might yet be blessed with success, and that at the moment when I supposed the hand of relief far from me, it might be very near; and when I next thought of my wife and children, I felt a kind of conviction within me, that we should not all perish after such signal deliverances.

I then made for the sea side about a mile eastward of my men, and finding a good place between some rocks, I bathed myself for half an hour in the sea water, which refreshed and revived me very much, and then returned to my men with a heart lighter than I expected.

I was very much fatigued, and threw myself down on the sand. They gathered around me, to know what success I had met with: but to waive the subject of my sad discovery, I told them we could go along the beach for two miles before meeting again with the perpendicular cliffs, and would find great relief by bathing our bodies in the salt water; inquiring, at the same time, if they had found any fresh in the last place they had been digging. I thus diverted their minds, in some measure, from the object they wished to inquire after; and as I found they had dug down six or eight feet, and had found no water, having come to a rock which frustrated all their attempts, with heavy hearts and tottering limbs we staggered along the shore together.

It was about mid-day when we got to the end of the sand beach; my people

thought it would be impossible for them to climb the craggy steep; so with common consent we laid ourselves down under the shade formed by a shelving rock to rest, and to screen ourselves from the rays of the sun, which had heated the air to such a degree that it was with the greatest difficulty we could fetch our breath. There was no wind or air stirring at this time, except the hot steam rising from the sandy beach, which had been wet by the sea at the last tide.

Having lain down in our exhausted state, neither thirst nor our reflections had power to keep our eyes open; we sunk into a lethargic sleep, which continued about two hours, during which time a light breeze from the sea had set in, and gently fanned and refreshed our debilitated bodies. We then ascended the steep bank, crawling frequently on our hands and knees.

Though I had previously prepared all their minds for a barren prospect, yet the sight of it, when they reached its level, had such an effect on their senses, that they sunk to the earth involuntarily; and as they surveyed the dry and dreary waste, stretching out to an immeasurable extent before them, they exclaimed, "'Tis enough—here we must breathe our last! We have no hope before us of finding either water or provisions, or human beings, or even wild beasts; nothing can live here!" The little moisture yet left in us overflowed at our eyes; but as the salt tears rolled down our woe-worn and haggard cheeks, we were fain to catch them with our fingers and carry them to our mouths, that they might not be lost, and serve to moisten our tongues, that were now nearly as dry as parched leather, and so stiff that with difficulty we could articulate a sentence so as to be understood by each other.

I began now to exhort and press them to go forward, telling them that we still might find relief; and in this effort I was assisted by Hogan, who thought with me that it was time enough to lie down and die when we could not walk. Mr. Williams and Mr. Savage were also willing, and we moved on slowly, with scarcely a hope, however, of meeting with the least relief.

We continued along on the edge of the cliffs, which could not be less than from five to six hundred feet in perpendicular height. The surface of the ground was baked down almost as hard as flint. It was composed of small rugged stones, gravel, and reddish earth. We observed a small dry stalk of a plant, resembling that of a parsnip, though very low, and some dry remains of locusts were also scattered on the surface as we proceeded. Near night we saw some small holes dug on the surface, and on examination found they had been made in order to get at the root of the dry root we had just before seen: this, we conceived, had been done by some wild beasts; but finding no tracks of any kind near them, nor on the dirt dug up, I concluded it was done by man, and declared my hopes to my desponding companions of soon meeting with human beings.

We procured, after great labour in digging with sticks we had brought from the boat, and the help of stones, a few small pieces of a root as large as a man's finger. It was very dry, but in taste resembled celery. We could no get enough to be of any material service to us, owing to the scarcity of the plant and the hardness of the ground; but about sunset we discovered, on a

small spot of sand, the imperfect track of a camel, and thought we saw that of a man, which we took to be a very old track.

Believing, from our present feelings, that we could not possibly survive a day longer without drink, and no signs of finding any appearing, the last ray of hope faded away, and the gloom of despair, which had at length settled on our hearts, now became visible in every countenance. A little after sunset we saw, at a considerable distance in advance, say three or four miles, another sand beach, and I urged myself forward towards it as fast as I could, in hopes of getting some rest by sleeping on the sand for the night, as the ground we were now on was as hard as a rock, and covered with small sharp stones. I was encouraging the men to follow on when Clark, being near me, begged me to look towards the beach, saying—

"I think I see a light!"

It was the light of a fire!

Joy thrilled through my veins like the electric spark. Hope again revived within me, and while I showed it to my sinking and despairing crew, I found it communicated to them the same feelings. I told them we must approach the natives, who, I could not doubt, were encamped for the night, with the greatest caution, for fear of alarming them and falling a sacrifice to their fury in the confusion we might occasion by our sudden approach in the dark. New life and spirits were diffused among all the crew, and we soon reached a broken place in the bank, through which we descended carefully over the broken rocks from three to four hundred feet to a sandy spot near its base, where we laid ourselves down for the night, after imploring the protection of Almighty God, and wetting our mouths with a few drops of water still remaining in the bottles.

The sand on which we lay was heated by the sun's rays sufficiently to have roasted eggs, and as we were on the side of a sand hill, we scraped off the top of it for a foot or two deep, when, finding the heat more supportable, and the cool breeze of the night setting in, all hands being excessively fatigued, soon forgot their sufferings in the arms of sleep, excepting myself, for my mind had become so excited by alternate hopes and fears, and reflections, that I was kept awake through the whole of this long and dismal night. I had determined, as soon as daylight appeared, to show ourselves to the natives, and submit either to death or life from their hands. I had no doubt of their being Arabs, who would take and hold us as slaves, and though I did not expect myself to live but a short time in that condition, I presumed some of my fellow sufferers might, and that it was a decree of Providence which had set this alternative before us.

I no longer felt any fear of death, for that would put a period to my long sufferings: my thirst had become so insupportable, that I could with difficulty breathe, and thought I would be willing to sell my life for one gill of fresh water. My distresses had been so excessive, and my cares and anxieties for my shipmates so great, that all thoughts of my family had been driven almost entirely from my mind. I could not sleep—why was I denied what all around me were enjoying!—I shut my eyes and prayed to be permitted to sleep, if

only for one hour, but all in vain. I imagined that the savages, who were near us, would not take our lives immediately, as it was contrary to the nature of man to slay his fellow-creatures, merely from a thirst for blood.

We had now no arms to defend ourselves with, nor any property to excite their jealousy, revenge, or avarice, we were as miserable as human beings could be, and I hoped we should excite pity, even in the breasts of savage Arabs. I could hardly yet think that we were to fall a sacrifice to these people, after the providential escapes we had already experienced: next the remembrance of my wife and children flitted across my mind, and I was forced to acknowledge, that however bad their situation might be, their real distress could in no wise equal mine, and that I had no right to repine at the dispensations of Providence, since every mortal has his circle wisely marked out by Heaven; and nothing but blindness to the future occasions us to complain of the ways of our Creator. If it was the will of the Supreme Being that I should again see and embrace my beloved family, it would certainly take place; if not, that Power who ordered all things for the general good would not forsake them.

Thus passed away the night, which had seemed to me an endless one. I was impatient to know my fate, and chid the slowness of the sun: my great anxiety and wakefulness rendered my thirst doubly painful, and having expended all the urine I had so carefully saved, I had recourse before morning to robbery, and actually stole a sip of the cook's water, which he had made and saved in a bottle; but the only taste it had for me was a salt one, and it seemed (if possible) to increase my burning thirst.

The day at last arrived that was to decide our fate. It was the 10th September, I awakened my companions, and told them we must now go forward and show ourselves to the natives; that I expected they would seize upon us as slaves, but had strong hopes that some of us would escape with our lives. I also mentioned to them the name of the American Consul-General at Tangier, and that if it ever was in their power, they must write to him, inform him of the fate of our vessel and her crew; to write, if possible, to any Christian merchant in Mogadore, Gibraltar, or elsewhere, or to the Consul at Algiers, Tunis, or Tripoli, if they should hear those places mentioned, and exhorted all to submit to their fate like men, and be obedient, as policy required, to their future masters.

I reminded them again of the former interpositions of Providence in our favour, and said all I could to encourage and persuade them, that mildness and submission might save our lives, that resistance and stubbornness would, certainly tend to make them more miserable while alive, and probably prompt the natives to murder them out of resentment.

All agreed to go forward, and on ascending the little sand hills near us, we discovered a very large drove of camels at about half a mile to the eastward of us, with a large company of people, in a kind of valley formed by a ridge of sand hills on the north next to the sea, and by a high land to the south, rising from five to six hundred feet in upright and overhanging cliffs, through which a little further on we saw a deep hollow that appeared to have been

formed by some convulsive shock of the earth, which had thus made a sort of passage, through which camels were enabled to pass up and down, but with great difficulty.

The Arabs seemed busied in giving water to their camels; they saw us, and in an instant one man and two women ran towards us with great speed. As they came forward, many others of them who saw us also began to advance; so taking Mr. Williams and Mr. Savage with me, I went forward to meet them, bowed myself to the ground before them, and with signs implored their compassion.

The man was armed with a scimitar, which he held naked in his hand; he ran up to me as if to cut me to the earth. I bowed again in token of submission, and he began without further ceremony to strip off my clothing, while the women were doing the same to Mr. Williams and Mr. Savage. Thirty or forty more were arriving, some running on foot, with muskets or naked scimitars in their hands; others riding on swift camels, came swiftly up; by the time they arrived, however, we were all stripped naked to the skin. Those Arabs near us threw up sand into the air as the others approached, yelling loudly, which I now learned was a sign of hostility. The one who stripped me had also taken the cook, and had put all the clothing he had stripped from us into a blanket, which he had taken from off his own back for that purpose, leaving himself entirely naked. This bundle he laid on the negro's shoulders, making me understand that myself and the black man belonged to him, and that we must not let the others take the clothes in the bundle under pain of death.

As soon as those on the camels were near, they made them lie down, and jumping off, ran to us with their scimitars naked and ready for action; those on foot now joined these, and a great noise and scuffle ensued. Six or eight of them were about me, one hauling me one way and one another. Poor Dick, the black man, partook of the hauling, and each man seemed to insist most strenuously that we belonged of right to him. The one who stripped us stuck to us as his lawful property, signifying, "you may have the others, these are mine."

They cut at each other over my head, and on every side of me with their bright weapons, which fairly whizzed through the air within an inch of my naked body, and on every side of me, now hacking each other's arms apparently to the bone, then laying their ribs bare with gashes, while their heads, hands, and thighs, received a full share of cuts and wounds. The blood, streaming from every gash, ran down their bodies, colouring and heightening the natural hideousness of their appearance. I had expected to be cut to pieces in this dreadful affray, but was not injured.

Those who were not actually engaged in combat, seized the occasion, and snatched away the clothing in Dick's bundle, so that when the fight was over, he had nothing left but his master's blanket. This battle and contest lasted for nearly an hour—brother cutting brother, friend slashing friend. Happily for them, their scimitars were not very sharp, so that when they rubbed off the dry blood from their bodies afterwards with sand, their wounds were not so

great or deep as I expected they would be, and they did not pay the least apparent attention to them. I had no time to see what they were doing with my shipmates; only myself and the cook were near each other.

The battle over, I saw my distressed companions divided among the Arabs, and all going towards the drove of camels, though they were at some distance from me. We too were delivered into the hands of two old women, who urged us on with sticks towards the camels. Naked and barefoot I could not go very fast, and showed the women my mouth, which was parched white as frost, and without a sign of moisture. When we got near the well, one of the women called for another, who came to us with a wooden bowl, that held, I should guess, about a gallon of water, and setting it on the ground, made myself and Dick kneel down and put our heads into it like camels.

I drank I suppose half a gallon, though I had been very particular in cautioning the men against drinking too much at a time, in case they ever came to water. I now experienced how much easier it was to preach than to practise aright. They then led us to the well, the water of which was nearly as black and disgusting as stale bilge-water. A large bowl was now filled with it, and a little sour camel's milk poured from a goat-skin into it; this tasted to me delicious, and we all drank of it till our stomachs were literally filled. But this intemperance very soon produced a violent diarrhœa; the consequences of which, however, were not very troublesome, and as our situation was similar to that of a beast, being totally divested of clothing, all we cared about was to slake our unabating thirst, and replenish our stomachs by repeated draughts of this washy and unwholesome swill.

We now begged for something to eat, but these Arabs had nothing for themselves, and seemed very sorry it was not in their power to give us some food. There were at and about the well, I should reckon, about one hundred persons, men, women, and children, and from four to five hundred camels, large and small. The sun beat very fiercely down upon us, and our skins seemed actually to fry like meat before the fire. These people continued to draw water for their camels, of which the animals drank enormous quantities.

It was about 10 o'clock A.M., as I judged by the sun, when one company of the Arabs having finished watering, separated their camels from among the others, took Mr. Williams, Robbins, Porter, Hogan, Barrett, and Burns, mounted them on the bare backs of the camels behind the hump, by the hair of which they were obliged to steady themselves and hold on, without knowing whither they were going, or if I should ever see them again. I took an affectionate leave of them. This their Arab masters permitted me to do without interruption, and could not help showing, at this scene, that the feelings of humanity were not totally extinguished in their bosoms. They then hurried them off, and ascending through the hollow or crevice towards the face of the Desert, they were all soon out of sight.

There remained with the party to which I belonged Mr. Savage, Clark, Horace, and Dick the cook. Mr. Savage was permitted to retain an old Guernsey frock, and part of a pair of trousers about his middle, which they had not pulled off: but the rest of us were entirely stripped. Mr. Savage,

Clark, and Horace were forced to assist in drawing water for the camels, until all had drunk their fill: then having filled with water a considerable number of goat-skins, which had been stripped off these animals over the neck, leaving them, otherwise, as whole as when on their backs, they slung them by the skin of their legs on each side of the camels, after tying up the neck to prevent the water escaping, by means of a small rope which they fastened to the fore-legs of the skin to keep it up.

They next put on their baskets for the women and children to ride in; these were made of camels' skin, and fixed in such a manner with a wooden rim around them, over which the skin was sewed, that three or four could sit in them with perfect safety and ease, only taking care to preserve their balance. These baskets were fastened under the camels' bellies with a strong rope. I was obliged to assist in putting them on, and was in hopes of being permitted to ride in one of them, but that was not the intention of my master. I, as well as those who were with me, had drunk a great deal of water, while we were at the well, which had passed off, as before observed, without doing us any injury. We had been furnished also with a little milk in our water two or three times, which gave some relief to our hunger. The men had saddles just large enough for their seat: the pads are made of flat pieces of wood, a piece of the same rises in front, being about the length, breadth, and thickness of a man's hand; an iron rim, or a strong wooden one, goes round on each side, forming a circle; covered with a piece of skin stretched and sewed tight over it. The saddle is then placed on the camel's back before the hump, and fastened tight by a rope under his belly.

Thus prepared, we began to mount the sand hills and to get up through the gully. We were forced to walk and to drive the camels and keep them together, whilst the sand was so soft and yielding, that we sunk into it every step nearly to our knees. The blazing heat of the sun's rays darting on our naked bodies, and reflected from the sand we waded through; the sharp pointed craggy rocks and stones that cut our feet and legs to the bone, in addition to our excessive weakness, which the dysentery had increased, rendered our passage up through this chasm or hollow much more severe than anything of the kind we had before undergone, and nearly deprived us of life. For my own part I thought I must have died before I could reach the summit, and was obliged to stop in the sand, until, by an application of a stick to my sore back by our drivers, I was forced up to its level, and there they made the camels lie down and rest.

(To be continued.)

ROMAN GAMES.

BOCCE or Boccette, is played between two sides, consisting of any number of persons, each of whom has two large wooden balls of about the size of an average nine-pin ball. Beside these, there is a little ball called the *lecco*. This is rolled first by one of the winning party to any distance he pleases, and the object is to roll or pitch the *boccette* or large balls so as to place them beside the *lecco*. Every ball of one side nearer to the *lecco* than any ball of the other counts one point in the game, the number of points depending on the agreement of the parties.

The game is played on the ground, and not upon any smooth or prepared plane; and as the *lecco* often runs into hollows, or poises itself on some uneven declivity, it is sometimes a matter of no small difficulty to play the other balls near to it. The great skill of the game consists, however, in displacing the balls of the adverse party so as to make the balls of the playing party count, and a clever player will often change the whole aspect of affairs by one well-directed throw. The balls are thrown alternately, first by a player on one side, and then by the player on the other.

As the game advances, the interest increases, and there is a constant variety. However good a throw is made, it may be ruined by the next. Sometimes the ball is pitched with great accuracy, so as to strike a close-counting ball far into the distance, while the new ball takes its place. Sometimes the *lecco* itself is suddenly transplanted into a new position, which entirely reverses all the previous counting. It is the last ball which decides the game, and, of course, it is eagerly watched.

The French soldiers, once free from drill or guard, or from practising trumpet-calls, are sure to be rolling balls in this fasciñating game.

RUZZOLA.

Ruzzola, so called from the circular disk of wood with which it is played. Round this the player winds tightly a cord, which, by a sudden cast and backward jerk of the hand, he uncoils so as to send the disk whirling along the road. Outside the walls, and along all the principal avenues leading to Rome and Tuscany, parties are constantly to be met playing at this game; and oftentimes, before the players are visible, the disk is seen bounding round some curve, to the great danger of one's legs. He whose disk whirls the farthest wins a point.

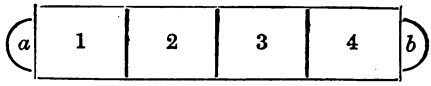
It is an excellent walking game, and it requires some knack to play the disk evenly along the road. Often the swiftest disks, when not well directed, bound over the hedges, knock themselves down against the walls, or bury themselves in the tangled ditches; and when well played, if they chance to hit a stone in the road, they will leap like mad into the air, at the risk of serious injury to any unfortunate passer.

In the country, instead of wooden disks, the *contadini* often use *cacio di pecora*, a kind of hard goat's cheese, whose rind will resist the roughest play.

What, then, must be the digestive powers of those who eat it, may be imagined, Like the peptic countryman, they probably do not know they have a stomach. not having ever felt it; and certainly they can say with Tony Lumpkin, "It never hurts me, and I sleep like a hound after it."

CAMPANA.

Among the Roman boys the game of *Campana* is also common. A parallelogram is drawn upon the ground and subdivided into four squares which are numbered. At the top and bottom are two semicircles or belts, thus :—



each of the players, having deposited his stake in the semicircle (*b*) at the farthest end, takes his station at a short distance, and endeavours to pitch some object, either a disk or a bit of *terra-cotta*, or more generally a *baiocco*, into one of the compartments. If he lodge it in the nearst belt (*a*), he pays a new stake into the pool; if into the farthest belt (*b*), he takes the whole pool; if into either of the other compartments, he takes one, two, three, or four of the stakes, according to the number of the compartment. If he lodge on a line, he is *abbrucciato*, as it is termed, and his play goes for nothing. Among the boys the pool is frequently filled with buttons; among the men, with *baiocchi*; but buttons or *baiocchi* are all the same to the players, they are the representatives of luck or skill.

KEEPING ONE'S WORD.

Sir William Napier, says his biographer, was one day taking a long country walk near Freshford, when he met a little girl about five years old, sobbing bitterly over a broken bowl. She had dropped and broken it in bringing it back from the field, to which she had taken her father's dinner in it, and she said she would be beaten on her return home. Then, with a sudden gleam of hope, she innocently looked up into his face and said,—"But yee can mend it, can't yee?" Sir William smilingly explained that he could not mend the bowl, but the trouble he could by the gift of a sixpence to buy another. However, on opening his purse it was empty of silver, and he had to make amends by promising to meet his little friend in the same spot at the same hour next day. The child, entirely trusting him, went on her way comforted. On his return he found an invitation awaiting him to dine in Bath the following evening, to meet some one whom he specially wished to see. He hesitated for some time, trying to calculate the possibility of giving the meeting to his little friend of the broken bowl, and of still being in time for the dinner-party in Bath; but finding this could not be, he wrote to decline accepting the invitation on the plea of a pre-engagement, saying to his family, —"I cannot disappoint her, she trusted me so implicitly."

THE HEN THAT HATCHED DUCKS.

A STORY BY MRS. HARRIET BEECHER STOWE.



ONCE there was a nice young hen that we will call Mrs. Feathertop. She was a hen of most excellent family, being a direct descendant of the Bolton Grays, and as pretty a young fowl as you should wish to see of a summer's day. She was, moreover, as fortunately situated in life as it was possible for a hen to be. She was bought by young Master Fred Little John, with four or five family connections of hers, and a lively young cock, who was held to be as brisk a scratcher and as capable a head of a family as any half-dozen sensible hens could desire.

I can't say that at first Mrs. Feathertop was a very sensible hen. She was very pretty and lively, to be sure, and a great favorite with Master Bolton Gray Cock, on account of her bright eyes, her finely shaded feathers, and certain saucy dashing ways that she had, which seemed greatly to take his fancy. But old Mrs. Scratchard, living in the neighbouring yard, assured all the neighbourhood that Gray Cock was a fool for thinking so much of that flighty young thing,—that she had not the smallest notion how to get on in life, and thought of nothing in the world but her own pretty feathers. "Wait

till she comes to have chickens," said Mrs. Scratchard. "Then you will see. I have brought up ten broods myself,—as likely and respectable chickens as ever were a blessing to society,—and I think I ought to know a good hatcher and brooder when I see her; and I know *that* fine piece of trumpery, with her white feathers tipped with gray, never will come down to family life. *She* scratch for chickens! Bless me, she never did anything in all her days but run round and eat the worms which somebody else scratched up for her!"

When Master Bolton Gray heard this he crowed very loudly, like a cock of spirit, and declared that old Mrs. Scratchard was envious, because she had lost all her own tail-feathers, and looked more like a worn out old feather-duster than a respectable hen, and that therefore she was filled with sheer envy of anybody that was young and pretty. So young Mrs. Feathertop cackled gay defiance at her busy rubbishy neighbour, as she sunned herself under the bushes on fine June afternoons.

Now Master Fred Little John had been allowed to have these hens by his mamma on the condition that he would build their house himself, and take all the care of it; and, to do Master Fred justice, he executed the job in a small way quite creditably. He chose a sunny sloping bank covered with a thick growth of bushes, and erected there a nice little hen-house, with two glass windows, a little door, and a good pole for his family to roost on. He made, moreover, a row of nice little boxes with hay in them for nests, and he bought three or four little smooth white china eggs to put in them, so that, when his hens *did* lay, he might carry off their eggs without their being missed. This hen-house stood in a little grove that sloped down to a wide river, just where there was a little cove which reached almost to the hen-house.

This situation inspired one of Master Fred's boy advisers with a new scheme in relation to his poultry enterprise. "Hullo! I say, Fred," said Tom Seymour, "you ought to raise ducks,—you've got a capital place for ducks there."

"Yes,—but I've bought *hens*, you see," said Freddy; "so it's no use trying."

"No use! Of course there is! Just as if your hens couldn't hatch ducks' eggs. Now you just wait till one of your hens wants to set, and you put ducks' eggs under her, and you'll have a family of ducks in a twinkling. You can buy ducks' eggs, a plenty, of old Sam under the hill; he always has hens hatch his ducks."

So Freddy thought it would be a good experiment, and informed his mother the next morning that he intended to furnish the ducks for the next Christmas dinner; and when she wondered how he was to come by them, he said, mysteriously, "O, I will show you how!" but did not further explain himself. The next day he went with Tom Seymour, and made a trade with old Sam, and gave him a middle-aged jack-knife for eight of his ducks' eggs. Sam, by the by, was a woolly-headed old negro man, who lived by the pond hard by, and who had long cast envying eyes on Fred's jack-knife, because it was of extra fine steel, having been a Christmas present the year before. But Fred knew very well there were any number more of jack-knives where

that came from, and that, in order to get a new one, he must dispose of the old; so he made the exchange and came home rejoicing.

Now, about this time Mrs. Feathertop, having laid her eggs daily with great credit to herself, notwithstanding Mrs. Scratchard's predictions began to find herself suddenly attacked with nervous symptoms. She lost her gay spirits, grew dumpish and morose, stuck up her feathers in a bristling way, and pecked at her neighbours if they did so much as look at her. Master Gray Cock was greatly concerned, and went to old Doctor Peppercorn, who looked solemn, and recommended an infusion of angle-worms, and said he would look in on the patient twice a day till she was better.

"Gracious me, Gray Cock!" said old Goody Kertarkut, who had been lolling at the corner as he passed, "a'n't you a fool?—cocks always are fools. Don't you know what's the matter with your wife? She wants to set,—that's all; and you just let her set! A fiddlestick for Doctor Peppercorn! Why, any good old hen that has brought up a family knows more than a doctor about such things. You just go home and tell her to set, if she wants to, and behave herself."

When Gray Cock came home, he found that Master Freddy had been before him, and established Mrs. Feathertop upon eight nice eggs, where she was sitting in gloomy grandeur. He tried to make a little affable conversation with her, and to relate his interview with the Doctor and Goody Kertarkut, but she was morose and sullen, and only pecked at him now and then in a very sharp unpleasant way; so, after a few more efforts to make himself agreeable he left her, and went out promenading with the captivating Mrs. Red Comb, a charming young Spanish widow, who had just been imported into the neighbouring yard.

"Bless my soul!" said he, "you've no idea how cross my wife is."

"O you horrid creature!" said Mrs. Red Comb; "how little you feel for the weaknesses of us poor hens!"

"On my word, ma'am," said Gray Cock, "you do me injustice. But when a hen gives way to temper, ma'am, and no longer meets her husband with a smile,—when she even pecks at him whom she is bound to honor and obey—"

"Horrid monster! talking of obedience! I should say, sir, you came straight from Turkey!" and Mrs. Red Comb tossed her head with a most bewitching air, and pretended to run away, and old Mrs. Scratchard looked out of her coop and called to Goody Kertarkut.

"Look how Mr. Gray Cock is flirting with that widow. I always knew she was a baggage."

"And his poor wife left at home alone," said Goody Kertarkut, "It's the way with 'em all!"

"Yes, yes," said Dame Scratchard, "she'll know what real life is now, and she won't go about holding her head so high, and looking down on her practical neighbours that have raised families."

"Poor thing, what'll she do with a family?" said Goody Kertarkut.

"Well, what business have such young flirts to get married?" said Dame Scratchard. "I don't expect she'll raise a single chick; and there's Gray

Cock flirting about as fine as ever. Folks didn't do so when I was young I 'm sure my husband knew what treatment a setting hen ought to have,—poor old Long Spur,—he never minded a peck or so now and then. I must say these modern fowls a'n't what fowls used to be."

Meanwhile the sun rose and set, and Master Fred was almost the only friend and associate of poor little Mrs. Feathertop, whom he fed daily with meal and water, and only interrupted her sad reflections by pulling her up occasionally to see how the eggs were coming on.

At last, "Peep, peep, peep!" began to be heard in the nest, and one little downy head after another poked forth from under the feathers, surveying the world with round, bright, winking eyes; and gradually the brood were hatched, and Mrs. Feathertop arose, a proud and happy mother, with all the bustling, scratching, care-taking instincts of family-life warm within her breast. She clucked and scratched, and cuddled the little downy bits of things as handily and discreetly as a seven year old hen could have done, exciting thereby the wonder of the community.

Master Gray Cock came home in high spirits, and complimented her; told her she was looking charmingly once more, and said, "Very well, very nice!" as he surveyed the young brood. So that Mrs. Feathertop began to feel the world going well with her,—when suddenly in came Dame Scratchard and Goody Kertarkut to make a morning call.

"Let's see the chicks," said Dame Scratchard.

"Goodness me," said Goody Kertarkut, "what a likeness to their dear papa!"

"Well, but bless me, what's the matter with their bills?" said Dame Scratchard. "Why, my dear, these chicks are deformed! I'm sorry for you, my dear, but it's all the result of your inexperience; you ought to have eaten pebble-stones with your meal when you were setting. Don't you see Dame Kertarkut, what bills they have? That'll increase, and they'll be frightful!"

"What shall I do?" said Mrs. Feathertop, now greatly alarmed.

"Nothing, as I know of," said Dame Scratchard, "since you didn't come to me before you set. I could have told you all about it. Maybe it won't kill 'em, but they'll always be deformed."

And so the gossips departed, leaving a sting under the pin-feathers of the poor little hen mamma, who began to see that her darlings had curious little spoon bills, different from her own, and to worry and fret about it.

"My dear," she said to her spouse, "do get Dr. Peppercorn to come in and look at their bills, and see if anything can be done."

Dr. Peppercorn came in, and put on a monstrous pair of spectacles, and said, "Hum! Ha! Extraordinary case.—very singular!"

"Did you ever see anything like it, Doctor?" said both parents, in a breath.

"I've read of such cases. It's a calcareous enlargement of the vascular bony tissue, threatening ossification," said the Doctor.

"Oh, dreadful! can it be possible?" shrieked both parents. "Can anything be done?"

"Well, I should recommend a daily lotion made of mosquitoes' horns and

bicarbonate frogs' toes, together with a powder, to be taken morning and night, of muriate of fleas. One thing you must be careful about—they must never wet their feet, nor drink any water."

"Dear me, Doctor, I don't know what I *shall* do, for they seem to have a particular fancy for getting into water."

"Yes, a morbid tendency often found in these cases of bony tumification of the vascular tissue of the mouth; but you must resist it, ma'am, as their life depends upon it;" and with that Dr. Peppercorn glared gloomily on the young ducks, who were stealthily poking the objectionable little spoon-bills out from under their mother's feathers.

After this, poor Mrs. Feathertop led a weary life of it; for the young fry were as healthy and enterprising a brood of young ducks as ever carried saucepans on the end of their noses, and they most utterly set themselves against the doctor's prescriptions, murmured at the muriate of fleas and the bicarbonate of frogs' toes, and took every opportunity to waddle their little ways down to the mud and water which was in their near vicinity. So their bills grew larger and larger, as did the rest of their bodies, and family government grew weaker and weaker.

"You'll wear me out, children, you certainly will," said poor Mrs. Feathertop.

"You'll go to destruction! Do ye hear?" said Master Gray Cock.

"Did you ever see such frights as poor Mrs. Feathertop has got?" said Dame Scratchard. "I knew what would come of *her* family—all deformed, and with a dreadful sort of madness, which makes them love to shovel mud with those shocking spoon-bills of theirs."

"It's a kind of idiocy," said Goody Kertarkut. "Poor things! they can't be kept from the water, nor made to take powders, and so they get worse and worse."

"I understand it's affecting their feet so that they can't walk, and a dreadful sort of net is growing between their toes; what a shocking visitation!"

"She brought it on herself," said Dame Scratchard. "Why didn't she come to me before she set? She was always an upstart self-conceited thing, but I'm sure I pity her."

Meanwhile the young ducks throve apace. Their necks grew glossy, like changeable green and gold satin, and though they would not take the doctor's medicine, and would waddle in the mud and water—for which they always felt themselves to be very naughty ducks—yet they grew quite vigorous and hearty. At last, one day the whole little tribe waddled off down to the bank of the river. It was a beautiful day, and the river was dancing and dimpling and winking as the little breezes shook the trees that hung over it.

"Well," said the biggest of the little ducks, "in spite of Dr. Peppercorn, I can't help longing for the water. I don't believe it is going to hurt me; at any rate, here goes;"—and in he plumped, and in went every duck after him, and they threw out their great brown feet as cleverly as if they had taken rowing lessons all their lives, and sailed off on the river, away, away, among the ferns, under the pink azalias, though reeds and rushes, and arrow-heads

and pickerel-weed, the happiest ducks that ever were born ; and soon they were quite out of sight.

"Well, Mrs. Feathertop, this is a dispensation!" said Mrs. Scratchard, "Your children are all drowned at last just as I knew they'd be. The old music-teacher, Master Bullfrog, that lives down in Water Dock Lane, saw 'em all plump madly into the water together this morning; that's what comes of not knowing how to bring up a family."

Mrs. Feathertop gave only one shriek and fainted dead away, and was carried home on a cabbage-leaf, and Mr. Gray Cock was sent for, where he was waiting on Mrs. Red Comb through the squash-vines.

"It's a serious time in your family, sir," said Goody Kertarkut, "and you ought to be at home supporting your wife. Send for Dr. Peppercorn without delay."

Now, as the case was a very dreadful one, Dr. Peppercorn called a council from the barn-yard of the Squire, two miles off, and a brisk young Dr. Partlett appeared in a fine suit of brown and gold, with tail feathers like meteors. A fine young fellow he was, lately from Paris, with all the modern scientific improvements fresh in his head.

When he had listened to the whole story, he clapped his spur into the ground, and, leaning back, laughed so loud that all the cocks in the neighbourhood crowed.

Mrs. Feathertop rose up out of her swoon, and Mr. Gray Cock was greatly enraged.

"What do you mean, sir, by such behaviour in the house of mourning?"

"My dear sir, pardon me, but there is no occasion for mourning. My dear madam, let me congratulate you. There is no harm done. The simple matter is, dear madam, you have been under a hallucination all along. The neighbourhood and my learned friend the Doctor have all made a mistake in thinking that these children of yours were hens at all. They are ducks, ma'am, evidently ducks, and very finely formed ducks I dare say."

At this moment a quack was heard, and at a distance the whole tribe were seen coming waddling home, their feathers gleaming in green and gold, and they themselves in high good spirits.

"Such a splendid day as we have had!" they all cried in a breath. "And we know now how to get our own living; we can take care of ourselves in future, so you need have no further trouble with us."

"Madam," said the Doctor, making a bow with an air which displayed his tail-feathers to advantage, "let me congratulate you on the charming family you have raised. A finer brood of young healthy ducks I never saw. Give claw, my dear friend," he said addressing the elder son. "In our barn-yard no family is more respected than that of the ducks."

And so madam Feathertop came off glorious at last; and when after this the ducks used to go swimming up and down the river like so many nabobs among the admiring hens, Dr. Peppercorn used to look after them and say, "Ah! I had the care of their infancy!" and Mr. Gray Cock and his wife used to say, "It was our system of education did that!"

INDEPENDENT JOHN.

(*Concluded from page* 207.)

ON passing through the grove, they found themselves in a deep valley, filled with strange-looking trees: they continued on their way through it for some time; then, impelled by curiosity, they passed through another grove, and entered another and larger valley intersected with rivulets and trees.

They had decided to retrace their steps, when, upon passing through a group of tamarind trees, they suddenly perceived about fifty huts half concealed by luxuriant foliage.

Upon seeing the huts the boys halted. Undecided whether to advance or retire, and before they arrived at a decision, they heard a cry at a few paces distant, and they perceived a young native woman leading a little child by the hand.

The only garment she had on was a short fringed petticoat, formed of strips of skin skilfully woven together; from each of her nostrils small rings were suspended; a large necklace of various kinds of seeds, with feather bracelets, completed her costume.

The cry she had uttered upon seeing the two strangers arose from surprise rather than fear; for, seeing them stand motionless, she advanced quickly towards them, and spoke to them in a strange but musical language, at the same time taking their hands and putting them on her head.

John would have gladly understood, and replied to the woman; but all he could do was to take the infant she had placed on the ground into his arms and kiss it.

The woman's scream had, however, been heard in the huts, and the two brothers were soon surrounded by several women, who regarded them with surprise, mingled with joy and admiration.

John and Henry experienced great embarrassment and some curiosity; but what particularly surprised them was seeing no men. They had soon, however, an explanation of this singularity upon hearing a great noise approach. It was caused by the warriors of the tribe returning from the chase.

The chief having been informed of the stranger's arrival, almost immediately entered the hut. The two brothers stood up uncertain as to what would happen, but they were not left long in a state of doubt; for, advancing towards them, he extended one hand, placing the other on his breast, and in broken accents pronounced a few words which the boys had no difficulty in comprehending.

"God be praised! he speaks English," cried Harry, astounded.

"Yes, yes, English!" eagerly responded the chief, striking his breast "English, Daniel," he repeated, "Ove the son of Daniel."

John and Harry looked at him without being able to make out what he wished to say to them, and it required many repetitions on the part of the chief before he could express his meaning. At length the boys made out that an English sailor named Daniel had formerly dwelt on the island, and that he

had made an alliance with a tribe to whom he had rendered important service, and which in return had elected him their chief—the speaker was his adopted son and successor.

Ove added that the Great Spirit had favoured the Carougas in having sent two other white brothers who could teach them many new things, and assist them to overcome their enemies.

Then, turning towards the women, he gave them orders, upon which they went out; but soon returned, bringing mats, which they spread on the ground, and placed upon them calabashes filled with broiled meats and fish, and various kinds of fruit.

The brothers looked at each other in silence, not knowing whether they ought to accept the repast that was offered to them or not.

"Deuce take the cat-o'-nine-tails," cried John. "If we were to return now we should be late, and Master Cabot would take no excuse; so we may as well stay, and be flogged for a sheep instead of a lamb—the opportunity of dining with naked savages does not occur every day."

Thereupon they seated themselves on the ground, and cheerfully began to eat of the savoury fare. Ove sent them a gourd full of *ouïcou*, a very pleasant beverage, and began again to talk about his father Daniel. He told the boys how he had married one of the females of the tribe, and that he every day repeated that the pale-faced men were less happy in their country than the Carougas. One boasted of the fertility of the island, which abounded in fruits and game, of the skill of the women in making beds of cotton, and of the liberty the Carougas enjoyed in their forests.

The more gourds of *ouïcou* the chief swallowed the more brilliant his descriptions became, and the deeper became the interest of the brothers in his story. The fermented juice of the manioc commenced to trouble John's head, when Ove, turning to the young woman who had first perceived the two strangers, commanded her to sing the "Song of the Carougas" to his guests.

The woman placing her child on the ground, squatted down beside it, then, resting her hands on her knees with modest grace, she began in a monotonous but sweet voice to sing the following words:—

"O women! bring the *matoutous* of atainer and cover them with ignamase bananas, and porridge of *mouchache*; for there is a guest in the hut who is fond of fruit.

"Take your arrows, O young men, and pursue the tatou; set your snares for the great lizards of the bay; for there is a guest in the hut who is fond of the flesh of animals.

"Children, plunge into the waves, a stone in each hand, or swim near to the cascade where the nets are set; for there is a guest in the hut who is fond of fish.

"And you, girls, sing and rattle the calabashes full of stones, and dance joyously like the waves on the sea shore; for there is a guest in the hut who loves to be merry.

"And all of you together, say to our guest—remain under our roof, and take a wife from among the maidens of our tribe;

"For the Carougas are among men like the Eagle among birds: the earth is theirs, and they are its masters."

"The young woman ceased singing, and all present applauded her with loud cries. Excited by the *ouïcou* John shouted louder than the rest, and turning to his brother, he said:—

"Here's a happy lot of fellows, Harry, they can at least eat, walk, and sleep, just when they please."

"Suppose we stay with them?" said Harry, half tipsy.

"And be independent?

"And escape master Cabot's cat-o'-nine-tails."

"I'll consider of it, Harry.

"And become savages, John."

"Just so!" cried the novice, trying to stand on his feet. Hurrah! for the tattoed skins. We'll become real Carougas; then the earth will belong to us, and we shall be its masters. "Hurrah! Independence for ever!"

When Ove learned the decision of the two brothers, he expressed his great delight, in which the whole tribe joined; a fresh supply of *ouïcon* was brought in; they drank deep potations, and before long every one was extended on the mats in a complete state of stupor.

John and Harry did not awake from their stupor until very late next morning. They had at first some difficulty in recognizing their situation.

It seemed to them that they had had a strange and unpleasant dream. But gradually they collected their scattered ideas, and recalled to mind what had taken place. Frightened at the scrape they had got into, they hurried down to the sea shore, hoping to find a boat waiting for them, but upon arriving there they could see neither boats nor ship.

A storm had arisen during the night, compelling the ship to weigh anchor and put to sea. Captain Lowell kept on and off the island during several days, in hopes of regaining his anchorage, but without sucess. At length, fearing to compromise his ship by a longer stay in that neighbourhood, and thinking also that it was too late to succour the runaway boys, who had probably perished, he decided to put to sea and continue his voyage.

John and Harry reckoning upon the frigate's return, stayed several days by the sea shore, but after the lapse of a week, they gave up all hope.

At first they felt cruelly dissappointed: for, in spite of the resolution they had come to some days previously, when under the baneful influence of *ouïcou*, and their promises to Ove, they could not reconcile themselves to the idea of never seeing old England again.

However, after the first grief had passed away, John bravely adapted himself to circumstances. In his indomitable nature there was an energy and elasticity which was well calculated to sustain itself under reverses. He even tried to persuade himself that all was for the best.

"In fact," said he to Harry, who was very down hearted, "we could not possibly have lived much longer on board that ship. The captain was a tyrant, and Boatswain Cabot a brute. Here we can do as we like, and that

will compensate us for every loss. Recollect, Harry, I always told you that I wished to be independent."

"Then let us be independent," said Harry, heaving a profound sigh. They then directed their steps towards the hut of Ove the chief.

John declared to him their intention of joining the tribe, and to be their friends and allies, ha Daniel had been. Ove was delighted.

"One of our brothers is going to be received as a warrior to day," said the chief: "our white friends will then have an opportunity of seeing upon what conditions they may become part of the tribe of the Carougas."

John and Harry exchanged glances.

"I am afraid, brother," said Harry, "that they will require us to leave off wearing trousers."

"At all events," replied John, "they don't wear them themselves."

"But do you think they will make us rub our skins with cocoa-nut oil."

"That will protect us from the musquitoes and the sea-brine."

"Besides," remarked Ove, who had overheard this conversation, "must not a Carouga recognize his brother by the manner in which he is painted?"

"Exactly so," murmured Harry, "but I wish that savage independence went as far as to permit us to wear trousers."

Meanwhile the tribe assembled together: and the young candidate for warriorship was brought into their midst, and seated alone.

His father approached him and pronounced a long discourse, in which he exhorted him to courageously face the enemy, and to patiently endure all accidents and misfortunes, in order to prove that he was a true Carouga. Then, taking an eagle, he struck his son on the skull with its head, until the latter was crushed by the blows. Then arming himself with some of the sharp teeth of an acouti, he cut his son's skin in every direction, then rubbed the wounds with the blood of the eagle mixed with pimento-juice. Lastly, he gave his son the heart of the bird to eat.

The young savage who had endured these tortures without uttering a cry, was next placed in a cotton bed, where, his father informed him, he must remain fasting five days. At the expiration of that time he would be declared a warrior, worthy to hunt and fight with the Carougas.

The two brothers watched this cruel ceremony with curiosity, mingled with terror and pity. When it was over, Ove turned to them and said solemnly,—

"My white brothers have seen."

"And can they not become members of your tribe without these tortures?" inquired John.

"No," replied the chief; "for by these means we satisfy ourselves with regard to the courage and fortitude of our youth. Cowards can never become Carougas."

"I think it must be a thousand times worse than the cat-o'nine-tails," whispered Harry to his brother.

John made no reply; he had become careless.

The brothers took but a small share in the festival given in honour of the young man who had been accepted as a warrior. When they found themselves alone, John said to his brother,—

"We can't stay among these brutes, Harry. It is everywhere the same. At the school we had our tasks and our punishments; on board ship it was the cat-o'nine-tails; here it is cutting and torturing your flesh. Wherever men are gathered together, the strong tyrannize over the weak and torture them. We must take to the woods, Harry. The earth, the sky, and the water will supply all our wants, as they do those of the savages. Deuce take their tribe, I say. To be independent, one must live alone."

Harry thought too much of his skin as well as of his trousers not to relish this advice, so, taking advantage of a drunken carousal of the Carougas, they quitted the valley that very evening.

They crossed several chains of hills and passed through many valleys, and at length, in the course of several days, arrived at a vast and elevated plain. from whence they could view the entire island and the ocean surrounding it.

The plain was covered with trees laden with fruit; a stream, in which there were numerous fish, ran through it; ignamas and manioc grew without culture. The boys thought it would be impossible to find a more agreeable spot.

Thereupon they set about collecting dry branches of trees and earth, and built themselves a hut for shelter, covering it with palm leaves.

To make a bed they drove four posts into the earth, as they had seen the Carougas do. Then interlaced some strong vegetable fibres, to form a kind of sacking, upon which they put dried leaves and cotton wool. Then they made themselves bows with young palm trees, and arrows with bamboos pointed with fish-bone; but it was a long time before they could make use of them with sufficient skill to bring down birds and other animals. Fortunately they supplied themselves with plenty of food with the fish they caught, the fruit they plucked from the trees, and the roots they dug out of the earth.

Several months passed away in this manner. John had acquired quite a relish for this wild life, and tried to persuade himself that the liberty he enjoyed was sufficient for his happiness. But, notwithstanding every effort, sadness and discouragement grew upon his spirits; solitude weighed very heavily upon him. Besides, he had soon to endure certain evils which he had not foreseen. His clothes, and also his brother's, were all in rags. They had to endure alternately the scorching heat of day and the cold night breezes.

To crown their misfortunes, a storm blew down their hut; the brook from whence they drew all their supply of fish suddenly dried up; the crop of ignamas became exhausted; and they found themselves short of food.

Harry, who was not so strong and robust as his brother, could not endure so much privation: he fell dangerously sick.

Hitherto John had bravely contended against misery; but when he saw his brother extended on their bed of leaves, speechless and with closed eyes, and almost breathless, his courage failed him. He seated himself on the ground, buried his face in his hands, and wept bitterly.

Poor Harry heard him, and called to him as well as he was able.

"Why do you weep, brother?"

"Because it is all my fault that you are here," replied John.

"Don't say that," murmured Harry; "did I not wish to come with you?"

"No, no!" replied John, angrily. "It was out of love for me that you came. It was because I could not submit to any one's dominion that I left home, and afterwards the ship. I wished to find a place where we could live entirely free; but now I understand that there can be no such place. Formerly it was our parents and teachers who were our masters; now it is hunger, heat, and sickness. What I believed to be independence is only isolation, and solitude is the worst of all evils to bear. If we were at home, or on board the ship, or even among the Carougas, you would be nursed, and be provided with remedies to soothe your pains, while I can do nothing but look on and weep over you. Oh! why did I not sooner recognize that what society exacts in obedience it repays in protection."

"I have often thought of that," murmured Harry; "and every time I heard you say 'I wish for independence,' it seemed to me as if you said, 'I wish to live alone, and opposed to everybody.' But if I had told you so, you would have thought I did not wish to come with you."

"Poor, dear Harry!" cried John, clasping his brother in his arms; "how can I repair the injury I have done you? Oh! if I could but restore you to our family, at the cost of my life! Heaven have mercy on a repentant sinner!"

He had scarcely finished speaking, when a dull, heavy sound fell upon their ears. Harry immediately opened his eyes.

"Did you hear that, John?"

"What?"

"Listen."

The sound was repeated louder.

"A gun! a gun!" cried John, joyfully, bounding to his feet, almost wild with joy.

"It is some ship, brother."

He heard no more, but rushed out of the cabin, and to his great delight saw a ship under full sail making straight towards the island.

A thought suddenly occurred to John; seizing a firebrand from the fire burning on the floor of the hut, he ran with it to a heap of dried leaves and sticks, which had been collected to serve as a store of fuel. It blazed up, and soon a tall column of smoke rose into the air, which must have served as a beacon as far off as the isle could be seen.

At the same time John climbed a tree, and made signals. Suddenly the ship's sails were backed, the vessel stopped, a boat was lowered, and made towards the island. They were observed!

John ran to the hut, and lifting his brother, almost delirious with joy, in his arms, he hastened towards the shore as fast as the weight of his burden permitted.

By the time he had arrived at the beach, the boat had already disembarked its crew, who were proceeding up to the cliffs. John felt his legs fail under him; a veil seemed to cover his eyes, and prevent him recognizing those who advanced towards him. He could hear only the sound of voices and

footsteps. He made an effort to rush to meet them, but fell breathless and exhausted at their feet.

"Shiver my timbers, but it's that young nigger again," cried a well-known voice.

"What, boatswain?" cried John, who immediately fainted with fatigue and emotion.

The sailors picked up the two brothers, and placing them in their boat, quickly conveyed them to the ship, where everything was explained. John told everything as it happened, without disguising or concealing anything.

The return of the ship was not accidental. Captain Lowell, having finished his survey, wished to pass the island again, in order, if possible, to ascertain the fate of the two boys. We see how fortune favoured this difficult search.

The care bestowed upon Harry was the means of restoring him to health; and with John he arrived safely home again. But experience had completely corrected John of the kind of pride that had rendered him so intractable. He became as submissive as he had before been rebellious; and whenever independence was alluded to in his presence, he was accustomed to say,—

"True independence consists only in the prompt obedience to duty."

BUTTER-CUPS AND DAISIES.

"How stupid you look, always staring straight up into the sky; what can you see there?" asked the Butter-cups of the Daisies.

"See! oh, we see the sun in his strength, and the glories of day, and the soft summer clouds, and the grand thunder-storms, and wonders and beauties beyond description," answered the Daisies.

"But you are stiff-necked by it, and all the field laughs at you," said the Butter-cups.

"We don't mind about it," said the Daisies.

"What poor, mean-looking things the Cardamines are! Don't you think so?" asked the Butter-cups.

"Are they," asked the Daisies, in reply.

"Shocking; but it would be better to be like *them* than those clumsy Clover Blossoms—don't you think so?" asked the Butter-cups.

"Can't say, indeed," replied the Daisies.

"As to those flaunting Campions, well, they *are* bold, standing so tall and holding their heads so high; wouldn't you be ashamed to be like them?"

"Friends," said the Daisies, "be advised: it may seem stupid to be always staring at the sky, but it is very plain that if you would follow our example and do it, you would escape seeing much that disquiets you now—an escape bought cheaply, even at the cost of a stiff-neck and a little contempt."

THE MAROONS OF JAMAICA.

(*Concluded from page* 168.)

MARTIAL LAW was instantly proclaimed throughout the island. The fighting men amongst the insurgents were not, perhaps, more than five hundred; against whom the Government could bring nearly fifteen hundred regular troops, and several thousand militia men. Lord Balcarres himself took the command, eager to crush the affair, promptly marched a large force up to Tretawney Town, and was glad to march back again as expeditiously as possible. In his very first attack, he was miserably defeated, and had to fly for his life, amid a perfect panic of the troops, in which some forty or fifty were killed, including Colonel Sandford, commanding the regulars, and the bullet-loving Colonel Gallimme, in command of the militia, while not a single Maroon was even wounded, so far as could be ascertained.

After this a good deal of bush-fighting took place. The troops gradually got possession of several Maroon villages, but not till every hut had been burnt by its owner. It was in the height of the rainy season, and between fire and water, the discomfort of the soldiers was enormous. Meanwhile the Maroons hovered close around them in the woods, heard all their orders, picked off their sentinels, and, penetrating through their lines at night, burned houses and destroyed plantations far below. The only man who could cope with their peculiar tactics was Major James, the superintendent, just removed by Government, and his services were not employed, as he was not trusted. On one occasion, however, he led a volunteer party further into the mountains than any of the assailants had yet penetrated, guided by tracks known to himself only, and by the smell of smoke of Maroon fires. After a very exhausting march, including a climb of a hundred and fifty feet up the face of a precipice, he brought them just within the entrance of Guthrie's Defile. "So far," said he, pointing to the entrance, "you may pursue, but no farther; no force can enter here; no white man, except myself or some soldier of the Maroon establishment, has ever gone beyond this. With the greatest difficulty I have penetrated four miles farther, and not ten Maroons have gone so far as that. There are two other ways of getting into the defile, practicable for the Maroons, but not for any one of you. In neither of them can I ascend or descend with my arms, which must he handed to me step by step, as practised by the Maroons themselves. One of the ways lies to the eastward, and the other to the westward; and they will take care to have them both guarded, if they suspect that I am with you, which, from the route you have come to day, they will. They now see you, and if you advance fifty paces more, they will convince you of it." At this moment a Maroon horn sounded the notes indicating his name, and, as he made no answer, a voice was heard, inquiring if he were among them. "If he is," said the voice, "let him go back, we do not wish to hurt him; but as for the rest of you, come on and try battle, if you choose." But the gentlemen did not choose.

In September the House of Assembly met. Things were looking worse and worse. For five months a handful of negroes and mulattoes had defied the

whole force of the island; and they were defending their liberty by precisely the same tactics through which their ancestors had won it. Half a million pounds sterling had been spent within this time, besides the enormous loss incurred by the withdrawal of so many able-bodied men from their regular employments. "Cultivation was suspended," says an eye-witness, "the courts of law had long been shut up; and the island at large seemed more like a garrison under the power of law-martial, than a country of agriculture and commerce, of civil judicature, industry, and prosperity." Hundreds of the militia had died of fatigue, large numbers had been shot down, the most daring of the British officers had fallen, while the insurgents had been invariably successful, and not one of them was known to have been killed. Captain Craskell, the banished superintendent, gave it to the Assembly as his opinion, that the whole slave population of the island was in sympathy with the Maroons, and would soon be beyond control. More alarming still, there were rumours of French emissaries behind the scenes; and though these were explained away, the vague terror remained. Indeed, the Lieutenant-Governor announced in his message that he had satisfactory evidence that the French Convention was concerned in the revolt. A French prisoner named Murenson had testified that the French agent at Philadelphia (Fauchet) had secretly sent a hundred and fifty emissaries to the island, and threatened to land fifteen hundred negroes. And though Murenson took it all back at last, yet the Assembly was moved to make a new offer of three hundred dollars for killing or taking a Trelawney Maroon, and a hundred and fifty dollars for killing or taking any fugitive slave who had joined them. They also voted five hundred pounds as a gratuity to the Accompong tribe of Maroons, who had thus far kept out of the insurrection; and various prizes and gratuities were also offered by the different parishes, with the same object of self-protection.

The commander-in-chief being among the killed, Colonel Walpole was promoted in his stead, and breveted as General, by way of incentive. He found a people in despair, a soldiery thoroughly intimidated, and a treasury, not empty, but useless. But the new general had not served against the Maroons for nothing, and was not ashamed to go to school to his opponents. First, he waited for the dry season, then he directed all his efforts towards cutting off his opponents from water; and, most effectual move of all, he attacked each successive cockpit by dragging up a howitzer, with immense labour, and throwing in shells. Shells were a visitation not dreamed of in Maroon philosophy, and their quaint compliments to their new opponent remain on record. "Damn dat little Buckra," they said, "he cunning more dan dem toder. Dis here da new fashion for fight; him fire big ball arter you, and when big ball 'top, de damn sunting (something) fire arter you again." With which Parthian arrows of rhetoric the mountaineers retreated.

But this did not last long. The Maroons soon learned to keep out of the way of the shells, and the island relapsed into terror again. It was deliberately resolved at last, by a Special Council convoked for the purpose, "to persuade the rebels to make peace." But as they had not as yet shown themselves very accessible to softer influences, it was thought best to combine as many arguments as possible, and a certain Colonel Quarrell had hit upon a wholly new plan. His

plan simply was, since men, however well disciplined, had proved powerless against Maroons, to try a Spanish fashion against them, and use dogs. The proposition was met, in some quarters, with the strongest hostility. England, it was said, had always denounced the Spaniards as brutal and dastardly for hunting down the natives of that very soil with hounds: and should England now follow the humiliating example? On the other side, there were plenty who eagerly quoted all known instances of zoological warfare, all oriental nations, for instance, used elephants in war, and no doubt would gladly use lions and tigers also, but for their extreme carnivorousness, and their painful indifference to the distinction between friend and foe; why not, then, use these dogs, comparatively innocent and gentle creatures? At any rate, "something must be done;" the final argument always used, when a bad or desperate project is to be made palatable. So it was voted at last to sent to Havanna for an invoice of Spanish dogs, with their accompanying chasseurs, and the efforts at persuading the Maroons were postponed till the arrival of these additional persuasives. And when Colonel Quarrell finally set sail as commissioner to obtain the new allies, all scruples of conscience vanished in the renewal of public courage and the chorus of popular gratitude; a thing so desirable must be right; thrice they were armed who knew their quarrel just.

But after the parting notes of gratitude died away in the distance, the commissioner began to discover that he was to have a hard time of it. He sailed for Havanna in a schooner manned with Spanish renegadoes, who insisted on fighting everything that came in their way, first a Spanish schooner, then a French one. He landed at Batabano, struck across the mountains towards Havanna, stopped at Besucal to call on the wealthy Marquesa de San Felipe y San Jarge, grand patroness of dogs and chasseurs, and finally was welcomed to Havanna by Don Luis de las Casas, who overlooked, for this occassion only, an injunction of his court against admitting foreigners within his government, "the only accustomed exception being," as Don Luis courteously assured him, "in favour of foreign traders who came with new negroes." To be sure, the commission had not brought any of these commodities, but then he had come to obtain the means of capturing some, and so might pass for an irregular practitioner of the privileged profession.

Accordingly, Don Guillermo Dawes Quarrell (so ran his passport) found no difficulty in obtaining permission from the Governor to buy as many dogs as he desired. When, however, he carelessly hinted at the necessity of taking also a few men who should have care of the dogs, this being, after all, the essential point of his expedition, Don Luis de las Casas put on instantly a double force of courtesy, and assured him of the entire impossibility of recruiting a single Spaniard for English service. Finally, however, he gave permission and passports for six chasseurs. Under cover of this, the commissioner lost no time in enlisting forty. He got them safe to Batabano, but at the last moment, learning the state of affairs, they refused to embark on such very irregular authority. When he had persuaded them, at length, the officer of the port interposed objections. This was not to be borne, so Don Guillermo bribed him and silenced him; a dragoon was, however, sent to report to the Governor; Don Guillermo

sent a messenger after him and bribed him too; and thus, at length, after myriad rebuffs, and after being obliged to spend the last evening at a puppet-show, in which the principle figure was a burlesque on his own personal peculiarities, the weary Don Guillermo, with his crew of renegadoes, and his forty chasseurs and their one hundred and four muzzled dogs, set sail for Jamaica.

These new allies were certainly something formidable, if we may trust the pictures and descriptions in Dallas's history. The chasseur was a tall, meagre, swarthy Spaniard or Mulatto, lightly clad in cotton shirt and drawers, with broad straw hat, and moccasins of raw hide; his belt sustaining his long, straight, flat sword or *machete*, like an iron bar sharpened at one end; and he wore by the same belt three cotton leashes for his three dogs, sometimes held also by chains. The dogs were a fierce breed, crossed between hound and mastiff, never unmuzzled but for attack, and accompanied by smaller dogs called finders. It is no wonder, when these wild and powerful creatures were landed at Montego Bay, that terror ran through the town, doors were everywhere closed and windows crowded, not a negro dared to stir, and the muzzled dogs, infuriated by confinement on ship-board, filled the silent streets with their noisy barking and the rattling of their chains.

How much would have come of all this in actual conflict does not appear. The Maroons had already been persuaded to make peace upon certain conditions and guarantees, a decision probably accelerated by the terrible rumours of the blood-hounds, though they never saw them. It was the declared opinion of the Assembly, confirmed by that of General Walpole, that "nothing could be clearer, than that if they had been off the island, the rebels would not have been induced to surrender." Nevertheless, a treaty was at last made, without the direct intervention of the quadrupeds. Again commissioners went up among the mountains to treat with negotiators at first invisible. Again were hats and jackets interchanged, not without coy reluctance on the part of the well-dressed Englishmen; and a solemn agreement was effected. The most essential part of the bargain was a guaranty of continued independence, demanded by the suspicious Maroons. General Walpole, promptly pledged himself that no such unfair advantage should be taken of them as had occurred with the hostages previously surrendered, who were placed in irons, nor should any attempt be made to remove them from the island. It is painful to add, that this promise was outrageously violated by the Colonial Government, to the lasting grief of General Walpole, on the ground that the Maroons had violated the treaty by a slight want of punctuality in complying with its terms, and by remissness in restoring the fugitive slaves who had taken refuge among them. As many of the tribe as surrendered, therefore, were at once placed in confinement, and ultimately shipped from Port Royal to Halifax, to the number of six hundred, on the 6th of June, 1796. For the credit of English honour, we rejoice to know that General Walpole not merely protested against this utter breach of faith, but indignantly declined the sword of honor which the Assembly voted him in its gratitude, and retired from military service for ever.

The remaining career of this portion of the Maroons is easily told. They were first dreaded by the inhabitants of Halifax; then welcomed, when seen, and

promptly set to work in the citadel, then in process of reconstruction, where the "Maroon Bastion" still remains,—their only visible memorial. Two commissioners had charge of them, one being the redoubtable Colonel Quarrell, and twenty-five-thousand pounds were appropriated for their temporary support. Of course they did not prosper; pensioned colonists never do, for they are not compelled into habits of industry. After their delicious life in the mountains of Jamaica it seemed rather monotonous to dwell upon that barren soil, for theirs was such that two previous colonies had deserted it, and in a climate where winter lasts seven months in the year. They had a schoolmaster, and he was also a preacher; but they did not seem to appreciate that luxury of civilization, utterly refusing, on grounds of conscience, to forsake polygamy, and, on grounds of personal comfort, to listen to the doctrinal discourses of their pastor, who was an ardent Sandemanian. They smoked their pipes during service time, and left Old Montagu, who still survived, to lend a vicarious attention to the sermon. One discourse he briefly reported as follows, very much to the point—"Massa parson say no mus tief, no mus meddle wid somebody wife, no mus quarrel, mus set down softly." So they sat down very softly, and showed an extreme unwillingness to get up again. But, not being naturally an idle race, (at least, in Jamaica the objection lay rather on the other side,) they soon grew tired of this inaction. Distrustful of those about them, suspicious of all attempts to scatter them among the community at large, frozen by the climate, and constantly petitioning for removal to a milder one, they finally wearied out all patience. A long dispute ensued between the authorities of Nova Scotia and Jamaica, as to which was properly responsible for their support; and thus the heroic race, that for a century and a-half had sustained themselves in freedom in Jamaica, were reduced to the position of troublesome and impracticable paupers, shuttlecocks between two selfish parishes. So passed their unfortunate lives until in 1800, their reduced population was transported to Sierra Leone, at a cost of six thousand pounds, since which they disappear from history.

It was judged best not to interfere with those bodies of Maroons which had kept aloof from the late outbreak, as the Accompong settlement and others. They continued to preserve a qualified independence, and retain it even now. In 1835, two years after the abolition of slavery in Jamaica, there were reported sixty families of Maroons as residing at Accompong Town, eighty families at Moore Town, one hundred and ten families at Charles Town, and twenty families at Scott Hall, making two hundred and seventy families in all, each station being as of old, under the charge of a superintendent. But there can be little doubt, that,under the influences of freedom, they are rapidly intermingling with the mass of the colored population in Jamaica.

The story of the excited Maroons attracted attention in high quarters, in its time; the wrongs done to them were denounced in Parliament by Sheridan and mourned by Wilberforce; while the employment of blood-hounds against them was vindicated by Dundas, and the whole conduct of the Colonial Government defended, through thick and thin, by Bryan Edwards. This thorough partisan even had the assurance to tell Mr. Wilberforce, in Parliament, that he knew the Maroons from personal knowledge, to be cannibals, and that, if a missionary were

sent among them in Nova Scotia, they would immediately eat him; a charge so absurd that he did not venture to repeat it in his History of the West Indies, though his injustice to the Maroons is even there so glaring as to provoke the indignation of the more moderate Dallas. But, in spite of Mr. Edwards, the public indignation ran quite high in England, against the blood-hounds and their employers, so that the Home Ministry found it necessary to send a severe reproof to the Colonial Government. For a few years the tales of the Maroons thus emerged from mere colonial annals, and found their way into Annual Registers and Parliamentary Debates, but they vanished from popular memory until the recent Gordon negro insurrection, when they took the side of the Government against the negroes. Their record still retains its interest, however, as that of one of the heroic races of the world; and all the more, because it is with their kindred that this nation has to deal, in solving the tremendous problem of incorporating their liberties with our own. We must remember the story of the Maroons, because we cannot afford to ignore a single historic fact which bears upon a question so momentous.

BOW WOW.

I FANCY that, of all the four-footed friends of man, none, not even that corpulent chap ELEPHANT, has contributed more voluminously to the literature of anecdote than that first-rate fellow DOG. Let me also take the liberty of recalling, in corroboration of others who have previously drawn attention to the same fact, that from the earliest ages we trace DOG as the companion, friend, and ally of him whom alone he condescends to acknowledge as master, to accept as tutor, and to sympathise with in the spirit of hostility to obnoxious things, and in attachment to the sports of the field. It can hardly be necessary for me to explain that I allude to MAN.

Above all other created things, Man is the one that laughs. Some of the lower animals weep. The deer, for instance, has been observed to shed tears in the extremity of terror, and the hard-pressed hare cries like an ill-regulated child; but not one of them indicate any emotion analagous to the laughter of Man, excepting Dog. True it is, that we hear of a "horse-laugh." There is a beast, too, called the "Laughing-hyena," and a dismal beast he is. Among the feathered tribe there flourishes an individual named the "Laughing-falcon." From inanimate creation the poet has evoked for us "Minni Haha," or the "Laughing Water;" and the expression, "it would make a cat laugh," is frequently made use of in reference to anything very ridiculous. But in every one of these cases of so-called laughing things, the sound only of the laughter is there, the sentiment is wanting. Not so with the dog, who, when the spirit of fun moves him, smiles beamingly with his eyes, giggles manifestly with his chops, or laughs uproariously with his tail, according as the occasion demands.

Yet, with all his wonderful gifts of intellectual ability, we cannot accede to dog the possession of the supereminent faculty called reason, the faculty which,

as an eminent writer, Tupper, I think, remarks, places Man immeasurably above all the other animals stationed so much lower down, and by virtue of which he is lord and master of them all, leading Behemoth over the land with a ring in his nose, and towing Leviathan across the waters with a harpoon in his ribs. Fine as the line may appear which separates instinct from the divine gift of reason, we must see that progress, an essential consequence of the latter, is denied to the former.

Well, if Dog has never invented so much even as a patent rat-trap,—a thing, you see, that might have saved him some labour; if he persists in disregarding the majesty of fashion, and continues to move about in society with the same kind of coat on his back as that worn by his first ancestor, hatless, disaffected of shoes, and totally obtuse to the amenity of an umbrella; if, in fact, his only approach to humanity, as distinguished by apparel, is his occasional adoption of a collar precisely similar in general effect to those in which fashion condemns her wretched votaries to partial strangulation,—well, say I again, in spite of all this, Dog is prime company. Intimately associated as I have been from earliest boyhood with many excellent fellows of the family; bound, I may say, as I was for years, not by straps and chains only, but by ties of confident friendship also, to canine comrades, possessing the purest elements of worth and humour, it is to me a task not altogether devoid of interest to fall back on such memories as may enable me to chronicle a few reminiscences of the nobilities and eccentricities of the race.

Before I discourse of individual dogs of the present century, however, with whom I have had the pleasure of being personally acquainted, let me reproduce the following short tale of a dog, from an old French volume, a tome fittingly adorned with ears of that noble animal innumerable.

Persimel St. Remi was a gentleman of fortune, whose income was derived principally from large rented farms, the dues arising from which he sometimes collected himself, in preference to intrusting that important duty to a steward or agent. On his excursions for that purpose, he was generally accompanied by a favourite little spaniel, of a kind too small to be of any service to him as an escort, but inestimable for his qualities as a companion. One day M. St. Remi had ridden a long way to collect certain sums of money due to him in arrears of rent, but which he had little expectation of being able to obtain without further trouble. To his agreeable surprise, however, his tenants paid him the whole arrears, an event so unexpected that he could not conceal his exultation as he clinked the heavy bag of money on the pummel of his saddle, when cordially taking leave of his farmers. Merle—that was the little dog's name—was equally delighted; for his moods were always regulated by those of his master, such is the mysterious sympathy between dog and us; and even as his master laughed cheerily to the chink of the gold, on his homeward ride, Merle barked and bounded alongside of him, clearly understanding that gold is a thing to be laughed *with* and not *at*, and that it is no laughing matter to be without it. This is what the old French writer asserts respecting the inward sentiments of that small dog. How he arrived at a knowledge of them I know not, nor is it any business of mine.

Well, Persimel St. Remi galloped on and on, until they reached the way-side well, about half way home—the old stone trough, with the water sparkling into it from the grotesque spout carved out of the rock. Here he pulled bridle to water his horse, refreshed him by further slackening the girths of the saddle, and unstrapping the bag of gold which was attached to the holsters, he placed it by his side on the rock, while he splashed his hands and face in the cool water. By-and-by he drew up the girths, mounted his horse dreamily, for he was a man of contemplative moods, and rode away from the way-side well, forgetful of his treasure, which lay temptingly on the flat rock, ready to the hand of the first comer. Not so his faithful dog, who, having in vain tried to lift the bag, which was too heavy for him, ran swiftly after the rider, whose attention he strove to arouse by barking violently, and careering round and round the horse when he slackened his pace. Failing thus to attract notice, he went so far in his zeal as to bite the horse pretty severely in the fetlock, which caused him to swerve on one side, and wake up his master to a vague sense of something wrong, the first idea that occurred to him being that his dog had gone mad. Cases of hydrophobia had lately occurred in the neighbourhood, and St. Remi was convinced of the seizure by it of his poor dog when they reached the brook which flowed across the road. Instead of luxuriating and drinking in this, as he usually did, the spaniel circled away to where it narrowed, and leaped across it in his run. Then St. Remi, drawing a pistol from his holsters, fired at and shot his faithful companion, averting his eyes as he touched the fatal trigger, and galloping rapidly away from the death cry that smote upon his ear; and, as he dashed the spurs into his reeking horse, he invoked maledictions on the money which was the cause of this unfortunate journey. The money! but where was it? Suddenly he pulled up his harrassed steed, and the unhappy truth flashed upon him; he had left his treasure by the way-side well, and had shot his faithful dog for trying to remind him of it. Riding back to the well with mad speed, he found by traces of blood upon the path that the poor spaniel had dragged himself thither again to guard his master's gold to the last, There he found him, stretched out beside the bag, with just strength enough left to raise his head towards his master, with a look of forgiveness ere he died.

Sporting dogs,—the setter, the pointer, the foxhound, and all the several varieties of hound, have had their historians, from Dame Juliana Berners to Peter Beckford, and that more recent Peter whose patronymic was Hawker; while the late "Frank Forester" has reduced kennel pratice to a system from which the Nimrod of the ramrod may not profitably depart. Apart from history, however, and from didactic argument, the individual traits of dogs remarkable in their day have but too rarely been recorded.

Certainly the shepherd's colley has been admirably individualized by the Ettrick Shepherd; but many a terrier—"a fellow of infinite fancy"—has passed through the world's worry without ever seeing his name in print, unless, indeed, he happened to have fallen among theives, and found himself lamp-posted accordingly, has passed the grizzle-muzzle period of doghood unbiographied, and gone down to his last burrow unsung.

Among the regrets with which we are saddled for our omissions, not the least

of mine, is galling me for having neglected to reduce to writing, on the spot, curious facts which fell under my immediate notice in the course of many years companionship with a somewhat miscellaneous assortment of canine friends.

"The little dogs and all,
Tray, Blanche, and Sweetheart."

Nevertheless, I will endeavour to bring together in this paper such stray reminiscences of doggery in general as may occur to me while I write, illustrating the subject, as I proceed, with occasional passages from the careers of humble, but eccentric individuals of the race.

Extinction has been the fate of some varieties of the dog, which have been either suspended by the progress of machinery, or have gone to decay in consequence of the annihilation of the animals for the chase of which they were maintained. When there were wolves in the mosses and caverns of Ireland, for example, there were wolf-dogs to hunt them. The last wolf of that country, and *he* was a wonder, from the then rarity of the animal, was killed about one hundred and fifty years ago; and although the breed of hound then known as the Irish wolf-dog, one of the largest, noblest, and most courageous of the canine race, was kept up to some extent for nearly a century later, we doubt much whether a single pure specimen of the variety is now in existence; unless, indeed, it may so happen that some *ultimus Romanorum* of the tribe still licks his patrician chops in the kennels of the Marquis of Sligo, in the possession of which family the last litter was many years ago supposed to be.

Reverting to times when I was a boy, I remember me of a generation of bandy-legged, foxy little curs, long of body, short of limb, tight of skin, and "scant of breath," which were regarded as the legitimate descendants of a superseded class—the Turnspit of good old times. The daily round of duty of that useful *aide-de-cuisine* transpired in the revolution of a wheel, along the monotonous journey of which he cantered, as a squirrel does in his rolling cage, keeping in motion, by his professional exertions, the wheels and spinners of the spit upon which the joint was kept turning before the fire. The tight skin of this ugly dog was evidently a provision of nature to secure him from entanglement with the machinery amid which his business was conducted. Had a Scotch terrier, for instance, whiskered and plumed, descended from his own more aristocratic circle to disport himself in that where Turnspit was the principal mover—the kitchen-wheel—he might have found himself cogged, and caught up, and spitted, and associated promiscuously with leg of mutton or roasted hare, in which capacity he might eventually have been eaten with current jelley and considerable relish, receiving more honour, perhaps, "in that connection," than had ever in his lifetime been lavished on him as a member of society.

But Turnspit's profession is a thing of the past—his very existence is a myth. The roasting-jack, with a wind-up weight by which the spit was turned, cut him out first of all; other inventions further diminished his importance. But the teakettle—which he somewhat resembled in figure, by-the-bye—scalded him clean off the face of creation; for the bright steam-engine, attached now-a-days to the kitchens of our principal hotels, has given a new turn to affairs, ruling the

roast after a fashion that sets back old Turnspit into the remotest corner under the back-stairs of the dark ages. I have alluded to his alleged descendants, as pointed out to my observation in boyhood; but they were an effete and degenerate race, purposeless and wallowing, much with the pigs, whom their grandsires would have recognised only to roast.

In one instance only do I remember being introduced to any dog whose profession was at all analogous to that of the Turnspit of other days. Falling into conversation with an old farmer in a remote and very rural district, I made some remarks about his dog, which was a very large, heavy one, of that no-particular-kind, happily classified by the comprehensive natural philosophers of the barn-floor as "yellow-dog." Farmer assured me that this fine fellow—whose name I am ashamed to say I have forgotten—did all the churning of the farm dairy by imparting his motive power to a wheel. This piece of ingenuity, Farmer informed me, was originally and exclusively an inspiration from the intellect which animated his Farmer's proper clod; nor was he greatly exhilarated when I narrated to him the tradition of the Turnspit, whose memory, I regret to record, he spurned as that of a "mean cuss," destitute of that poetry which dwelleth in the pastoral associations of the dairy.

Although not strictly in connection with the subject of this article, I will here relate a story told to me, on the same occasion, by that old farmer, because it struck me as being rather a good one, and is not particularly long.

Seeing that I took notice of a smock-frocked rustic employed in foddering the cattle, a rustic whose legs and accent were to me exclusively reminiscent of the pleasant roads and lanes of cheery Somersetshire—farmer informed me that he was a newish importation, having made his appearance about there early in the previous winter. While snow, of such quality and in such quantity as they have it in that region, was yet a novelty to the bumpkin, he was despatched on horse-back, one day, to the neighbouring village, strict instructions being given him to ride carefully in the middle of the track, as, treading in the deep snow, the horse might "ball"—an expression applied to taking up snow in the hollow of the hoof, which causes the animal to stumble. An unusually long time elapsed before the messenger made his appearance from his mission, and then he was seen making his way painfully through the snow, leading the horse after him by the bridle.

"What's wrong now?" inquired Farmer, as he glanced at the animal's knees; "been down, I guess; did Old Horse ball?"

"Noa," replied Bumpkin, "a didn't joost bawl, but a groonted consoomedly every time a coom down. Oi thowt a wur a gwoan to ball the last toime we coom down together, and zo oi joost stayed down and walked in whoam."

When doggy men talk about a terrier, they usually pronounce it *tarrier*, and not *terrier*, as we mostly call him. There is no authority for the former pronunciation, that I know of, beyond usage, which however is much taken as a standard in England, as in Darby for Derby, Clark for Clerk. The French word *terrier*—derived of course from *terre*—signifies not only the dog, but a burrow in the earth; a kind of retreat in which such dogs are supposed to pass a portion of their existence, occupied in the subterrerne branches of the chase. It means, also,

a land-roll or register. In lower Canada, which is essentially France, I recollect the label *Papier Terrier*, upon the door of a public land office. A friend of mine, clandestinely and under cover of darkness, removed the label, substituting for it a scurrilous one setting forth "Pasteboard Poodle," an announcement which did not appear to convey any particular idea whatever to the unsettled mind of the haggard provincial *chef de bureau*, as it flashed upon him next morning in the light of the glad young autumn day. But, reverting to pronunciation, *tare*-ier would, of course, more correctly reverberate the sound of the French original than either of the other usages, while it would possess the advantage of conveying a suggestion of that proclivity for tearing, so characteristic of the animal designated by the term. On this important question the learned philologists wrangle. For my part, I stick to *tarrier*, which comes "oncommon handy," as the horse dealer hinted, when reproved by the Cambridge Student for reducing a noble animal nearly to the level of a donkey by calling him "an 'oss."

And of all the terrier tribe, there is no quainter little fellow than he of the Island of Skye, known to his friends and admirers as the "Skye Dog." This little animal, which, in length of spine, shortness of legs, wildness of hair, and litheness of movement, resembles one of those long, hirsute caterpillars oft-times to be observed by the happy rambler in the country, as it promenades across his path, possesses many distinctive traits, which separate him, in a manner, from dog in general, assimilating him somewhat, indeed, to the *ferœ*, which find in rapine and carnage the subsistence which Nature evidently has not intended that they should realize in communion with man. The peculiar odour of the fox is his, though in a mitigated degree. He loves to make a lair under the bushes by tearing up the turf with his teeth and paws, and to lie in it. He is of a shy and reserved disposition, and usually more lively at night than by day. These are attributes of beasts of prey. Unlike all other members of the terrier family, he cares nothing about rats. He will sit down and bark in a tone of contempt at one turned out before him in a close passage or room, declining, in fact, to recognize rats as game, unless entered at them while very young. I speak only of the pure, unmixed Isle of Skye dog, or "tassel-terrier," as he is sometimes called by rabbit hunters, a breed difficult to obtain in perfection, and one which is particularly scarce. The proper game or quarry of this animal is the otter, which he does not hesitate to follow into his very burrow in the river banks; nor is he afraid to attack one nearly double his size.

Having, time after time, possessed several of these dogs, verified as being derived from the best stock on the island, from which their parents—who understood no language but Gaelic—were brought direct, I have noted some of their odd whimsical ways, a few of which I will illustrate, taking for my exponent one very remarkably little fellow who was a genuine type of his kind.

This animal was one of the smallest of his family, and of a colour uncommon among them; for they are mostly either of a yellowish dun, or of that slaty mouse colour known among dog-fanciers as "blue," a tint, by the way, particularly appropriate for a dog of Skye. Sometimes they are black, but Sambo, better known to his familiars as Sam, was of a sooty brindle, with a very dark muzzle, and eyes burning out like black stars from the cloud of shaggy hair that mantled

upon his brow. Next to the shortness of his legs, the length of his body was one of the most remarkable physical freaks I remember to have observed; neither of these attributes, however, have a chance of notice in comparison with the quantity and denseness of his long soft hair: for the coat of a true Skye dog is fleecy rather than wiry. It was the joint result of the shortness of his legs and the length of his beard that the latter appendage continually swept the ground, an inconvenience which I once undertook to remedy by trimming it off short with scissors. No Turk could have more indignantly resented the process than did that small quadruped,—his Celtic feelings being so severely wounded by it, in fact, that he abstained from sustenance for three days, putting himself into moral sackcloth and ashes for that period, by retiring into his penitential cell, under a chest of drawers.

(*To be continued*).

ORIGINAL ESSAYS. BY BOYS.

[Under this head we purpose giving any sensible Essays which our readers may send to us, and which we consider worthy of insertion. The first, sent to us by quite a stranger who has manifested already much interest in the Boys' Wonder Book, we give now; and while the insertion of "Original Essays by Boys" will afford some encouragement to the writers themselves, we hope it may be the means of inducing in others the desire to practice what is sure to be attended with considerable advantage to them in after life. Any help or advice we can give, we shall do so gladly to any one who will communicate with us.—[Ed. B. W. B.]

THE DUTY OF KINDNESS TO ANIMALS.

By Arthur Culver James.

THERE is nothing in all the world which makes man more like his maker than kindness to animals; and at the same time there is nothing more wicked and debased than cruelty to them. If we do not like the looks of any thing, we are not in the slightest degree justified in killing it, for every living thing is of some use.

Take for example the poor little worm; it is by no means a handsome insect, but it is extremely useful to the gardener, for without it but few, if any, flowers would grow, and yet how many people there are who when they see one of any description make a point either of maiming it and putting it to torture, or else killing it at once.

A cat, I think, is one of the most persecuted of all animals; many boys, whenever they see one, no matter how quiet it may be, never fail to pelt the poor luckless creature with stones, and yet even a cat is useful, for it keeps the

house clear of rats and mice. Besides this, Puss is very affectionate if she is treated kindly.

Again, were we to search all over the world, where should we find a more faithful, sagacious, or affectionate animal than the dog. It is true, that many people do love their dogs, and treat them kindly, but unfortunately, by far the greater portion are treated cruelly. How many dogs have saved their masters' lives, and would do so again if they had the chance? Every animal, however wild it has been, is capable of being tamed, and has invariably a great affection for its tamer, and this is most plainly shown in the case of Androcles, the Greek slave, who when seeking shelter from his pursuers in the forests, met a lion with a thorn in his foot. He immediately extracted it, and the lion went away. Sometime after this, Androcles was captured and placed in a den, a lion which had been caught some days before, and kept without food that it might be the more fierce, was then let loose upon him. The animal however, (which turned out to be the one which he had met before) no sooner saw the man, than he fell down and licked his feet, and the cause being inquired into, Androcles was set at liberty. Now, when we come to think of these things, it must strike us that it is our duty to behave kindly to animals, to try to tame them, and by no means to treat them with that brutal and wicked cruelty with which they are but too often used.

Many animals there are that might teach many English mothers an excellent lesson. Numbers of children of the poorer classes are allowed to roam the streets alone as soon as they can walk, and are looked upon more as burdens than anything else by their parents, who often have neither love nor care for them. Look at the lioness, on the other hand, how full of motherly love her heart is, how tenderly she watches the very action of her cubs, and how fondly she gazes on them at play. Well may the poet exclaim:—

"Mate of the strong, the fierce, the free,
A mother's heart is found in thee,
And for thy cubs that claim thy care,
As bravely wilt thou do and dare."

Take the very wildest creatures that are known, and you will find that they are capable of being tamed. Even the hare, the most timid creature known, has been tamed. Bernard Barton says:—

"The hare, though timid, cautious, sly,
By kindness has been tamed."

Where shall we find a more useful or sagacious animal than the horse. Without it England would not be half so celebrated for commerce, as she is. True, goods are conveyed from place to place by rail, but we should not be able to carry them to the stations without the aid of that truly valuable animal. And yet, how many horses are treated with the utmost cruelty. The handsome race-horse, having toiled for years upon the course, is frequently, at the approach of old age, sold for the merest trifle, to live the rest of his wretched life as a poor half starved hard working cab-horse. Barbarous as this may appear, it is but too often the case. A horse is very affectionate, and is but one of many instances that tends to prove that kindness to animals will be truly repaid.

And now we will leave the shores of enlightened England, and take a look at Arabia. Let us see how the half wild Arab treats his horse.

"The Arab boasts a noble steed,
Matchless in beauty and in speed,
Who well repays, by merits rare,
His master' kindness and his care."

In Arabia the affection between the man and his horse, is often that of a father and his child, it lives in the same tent with him, and is fondly beloved by his children, "who," as Barton observes, "play with it fearlessly, often throwing their arms about its neck, and falling asleep by its side." The same author relates an anecdote of an extremely poor Arab, who, when almost starving was tempted to sell his favourite horse to a French king. But when the time came for him to part with it, he looked first at the gold and then at his steed, and said, "To whom is it that I am going to yield thee up? To Europeans who will tie thee close, who will beat thee, who will render thee miserable! Return with me, my beauty, my jewel, and rejoice the hearts of my children. He then sprang on the animal's back and was out of sight in a moment. Oh, reader, what a beautiful, heavenly thing is kindness, and how ashamed of ourselves ought we to be, when we think, that many dumb animals that we beat and use cruelly, possess more kindness than many of us do. If some of those men who keep so many horses and dogs, would but think of this, how many lessons they might learn, and how much cruelty would be saved. Reader, let me appeal to your feelings, if ever you happen to see any one beating any animal, do your best to make him desist. And above all, keep from it yourself, it is neither manly nor clever to hurt any living thing, humble or small though it may be. Every animal or insect has its use, or you may be sure that God would not have made it. In those countries where we do not find horses, the camel is used. It is indeed a—

"Patient, temperate, useful beast,
And well may nations of the East,
Gratefully assert its worth
In the sandy deserts' dearth."

The reindeer, also in the icy regions of the north, is indispensable.

"The Laplander thy worth well knows,
Thou bear'st him o'er the frozen snows,
He, on thy milk, thy flesh, is fed,
Thy skin supplies his clothes and bed."

In conclusion, let us all reflect that God gave us these things that we should use them, and not abuse them, and, as we treat those dumb animals that require our care now, so will he treat us on the awful day of judgment, when we shall have to give Him an account of our actions in this life.

CORRESPONDENCE.

[All communications to be addressed to the Editor, at the Office, 3, Amen Corner, Paternoster Row, E.C.

PHOTOGRAPHIC WRINKLES.

Keep the collodion in a common two-ounce or four-ounce bottle, according to the size of the plates; the cork keeps the neck cleaner than a glass stopper. If any sediment is deposited, pour off into a clean bottle.

When draining off the collodion after coating, rock the plate backwards and forwards two or three times while in a vertical position, or the film will be uneven, having the appearance of crape.

Let the film set before immersing in the silver bath, or the chances are that it will wash off. In warm weather the collodion sets quickly.

Let the plate remain in the bath until all greasy lines disappear; it may be lifted occasionally to ascertain this.

When developing, be careful to let the iron solution flow evenly over the plate without stopping, otherwise a line will be formed. When the half-tones are well out, wash well under a tap till all greasiness disappears.

The following is a good intensifying solution:—

No. 1.

Pyrogallic acid - -	2 grains
Distilled water - -	1 ounce

This will keep two or three days.

No. 2.

Nitrate of silver - -	20 grains
Citric acid - - - -	20 ,,
Distilled water - -	1 ounce.

This will keep for months.

Take of No. 1 sufficient to cover the plate, and add a few drops of No. 2.

There is a great advantage in using the citric acid in the silver, instead of the pyrogallic solution. The citric acid, as well as the silver, retards rather than assists development. If, therefore, a picture is under-exposed, it will require more of No. 1 and less of No. 2: on the other hand, if it is over-exposed, less pyro and more silver will be required.

An over-exposed and intensified picture will give chalky whites; an under-exposed and under-developed picture will be wanting in detail.

ANSWERS TO CORRESPONDENTS.

A. C. J.—Accept our thanks for the interest you take in the Boy's Wonder Book, and for the subscribers you have obtained. If others of our readers would but follow your example, they would materially add to our success. We have sent you some more prospectuses for distribution.

H. W., Liverpool.—You omit to send us your exact address. We shall be happy to forward you any quantity of prospectuses of the Boy's Wonder Book.

J. Willis.—All communications should reach us not later than the 15th of each month, to receive attention in the next number.

W. R.—Chapters on the subject you name shall appear shortly. To your second question, decidedly not.

S. Handley, Liverpool.—To make blue ink: Dissolve a small quantity of indigo in a little oil of vitriol, and add a sufficient quantity of water, in which is dissolved some gum arabic. Oxalic acid dissolved in warm water will remove ink stains from printed books.

T. H.—A hen sits 21 days; rabbits go with young 30 days.

J. H. Wilkinson.—See answers in last month's number.

J. T. W. wishes to know if we can give a receipt for making the coloured fires as used at the theatres.

BLUE FIRE.

Nitre - - - - -	12	parts.
Sulphur - - - -	4	„
Sulphuret of antimony	2	„
Lamp black - - -	2	„

PURPLE FIRE.

Nitre - - - - -	25	parts.
Nitrate of strontian	25	„
Sulphur - - - -	7	„
Valgor - - - -	2	„
Lamp black - - -	1	„

GREEN FIRE.

Nitrate of barytes -	42	parts.
Sulphur - - - -	8	„
Chlorate of potash -	3	„
Lamp black - - -	1	„

EDWARD AUSTEN, Ryde.—The mariner's compass was invented in China, 1120 B.C.; said to be used in Venice, 1260; improved at Naples, 1302; its variations observed, 1500; its dippings, 1576.

A. J.—The altering of a muzzle-loader gun to a breech-loader is a very expensive process; and unless you have a particular liking for your own gun, we should advise you to change it at a gunsmith's, who will make you an allowance for the gun. Try a smaller sized shot—say No. 6 or 7; and you will no doubt be more fortunate.

A. Z., Plymouth.—We will send you a good work on the Flower Garden on receiving 14 stamps. We may here state that the conductors of the BOY'S WONDER BOOK will be happy to execute any commissions for their readers with which they may be favoured. To those of our subscribers who live at a distance from any large town, this offer will be a great boon, as through our agency anything they require, such as guns, magic lanterns, photographic cameras, new books, toys, &c., &c., may be procured; and they may in all cases trust to our being able to procure the best as well as cheapest articles possible.

A READER FROM THE FIRST NUMBER.—Send your name and address, and we will answer your question. In all cases it is our rule to require the name and address of our correspondents, *not* for publication, but merely as a guarantee of the writer's good faith.

BLIND TOM.—The article, "Tom's Pocket Money, and how he made it," will be continued monthly. You are not the only reader who has written to us on the subject.

S. B. T.—It is dangerous to sleep in a newly painted apartment. The vapour of the turpentine has proved fatal to the sleeper.

G. F. W. MILLIGAN.—The expense of binding the half-yearly volume will be about 2s. We purpose having proper cases made in due time, which can be procured at our office or through any bookseller.

J. F. W., Birmingham.—You just forestall us. An article on the Galvanic Coil, with full instructions how to make it, is prepared, and will appear in the next number of the "Boy's Wonder Book."

F. J. LEN.—You can do nothing for the voice, but wait patiently the operations of nature, which will be completed within a few weeks. Meanwhile it will be unpleasant, if not detrimental, to practise singing. Wait until the change in the voice is complete. You can then make up for lost time.

A. C. H. reminds us that there is a noble institution in England, which rivals that of Dr. Wichern, described in our February number. It is at Bristol, and under the superintendence of Mr. George Müller, and at present contains 1150 children; and measures are being taken for admitting 850 more. Mr. Müller has published a book containing a narrative of the work since its commencement in 1834; and he also publishes an Annual Report, giving an account of the money received, and how it is expended.

F. WILKINSON.—We know of no more recent work than the one you name; but we will continue our inquiries, and report the result. Also of a book on Butterflies and Moths.

WALTER.—A pigeon is reckoned to eat 1040 grains of wheat, or its equivalent, per day. It may be reckoned that a pigeon costs either the owner or his neighbours about eight shillings for every pound it weighs after it is plucked.

EDGAR.—We have heard of a horse that was fifty-two years old when it died.

D. K. J. sends us the following note of a naturalist:—"Some time ago, while searching for insects, I found the chrysalis of a spider firmly enclosed in a web. In trying to extricate it from its secure hiding-place, the chrysalis was broken, and several little spiders fell out, and began to run about quite briskly. The chrysalis was now removed a short distance from its original place; and the little spiders, with an instinct found only in animals of the lower species, discovered their way back to it, crept in, and remained secure for the time being." Thanking our correspondent for his interesting communication, we beg to intimate to our young readers that we shall be pleased to receive from them any original notes of observations made in the three kingdoms of nature, as well as of meteorological phenomena that may come under their notice. We shall also be pleased to receive descriptive accounts of curious local customs and observances connected with the calendar, &c.

P. P.—Every destructive animal appears to have its special mortal enemy in some other animal; and by their constant hostility and combats with eacn other, their numbers are kept from becoming too dangerous. Thus in Egypt, serpents, lizards, and frogs are devoured by the ibis; while the ichneumon is a relentless foe to rats and mice.

SANT, J.—The instrument by which the amount of moisture in the air is ascertained is called the *hygrometer*.

OTWAY, H.—Read White's *Natural History of Selborne*.

To the Editor of the BOY'S WONDER BOOK.
Lewisham, Feb. 14th, 1866.

DEAR SIR,—I have been thinking of sending to you an essay of mine, which I have written, to know if you would insert it in your Magazine. It seems a new idea to insert Boy's Essays, for I have not seen it elsewhere; and perhaps you will think me rather vain in supposing that I could write anything worth insertion. And I must say that I should feel rather proud to see it in print. If you think this suggestion a good one, and would like to see my Essay, I shall be so glad to send it. But you won't look at it too searchingly, will you, if I do send it?—I remain, dear Sir, yours faithfully,

J. P.

[You will see that we have commenced in this Number, "Original Essays by Boys," and we shall be glad to continue them. Send us yours. You will not find us a harsh, but rather an encouraging schoolmaster.—ED. B.W.B.

Belfast, Jan. 19th, 1866.

REV. AND DEAR SIR.—I have purchased the first two numbers of your Magazine, and must beg leave to express myself entirely satisfied with it. You are certainly proving yourself the boy's friend. There is, in the BOY'S WONDER BOOK, a vast amount of very useful information, told in such a way as to make it both clear to the understanding and palatable to the mind. I am glad to see that you are giving us some interesting biographies. I hope you will continue them, as they are well calculated to encourage us boys in the pursuit of knowledge. In common with your correspondent, A. J., I must express my approbation of your plan of examination papers. The questions given in them exercise the mind just as well as riddles or conundrums would, and are much more instructive. In short, I like the way in which your Magazine is conducted, and intend to continue it myself, and to recommend it to as many of my friends as possible. Go on as you have begun, and you will be entitled to the thanks and confidence of all boys. Wishing you every success, I have the honour to remain, Sir,

Yours respectfully,

A. C. H.

The Rev. Dr. PRIMROSE.

[We have mislaid your address. Please send it to us that we may communicate, by letter, with you.—ED. B. W. B.]

ALFRED.—It is the opinion of those most competent to judge that there is no such disease at all as the one you name; that it is a mere invention of quacks to frighten and rob young men like yourself. These parasites are the polluters of the mind and the slayers of the body. Need we say, that no respectable medical man ever advertises? He would be scouted by his fellows were he to resort to such an expedient to gain patients.

A. B.—There is a Gymnastic Society at the Crystal Palace; and there is the German Gymnastic Association.

F. W. T.—Manuscript for publication should be written on ruled quarto post paper, and on one side only. The most advantageous way of publication is, first in a magazine, and afterwards in volumes.

WALTER JAMES.—If you are a mechanic you might do well to emigrate to the South or West. Your success will entirely depend upon your industry, abilities, and temperate habits. Philadelphia to Pittsburg or Chicago would be the route to take. But you should first read about the country, so as to have correct ideas of what you will have to encounter. Mr. Trollope's book, or Mr. Chambers's will give you the information.

T. J. T.—Write to Mr. Stevens, Model Dockyard, 22, Aldgate, London, for an estimate of the model. He will also let you know the prices of the separate parts of the one-horse power engine.

Kensington, Feb. 10th, 1866.

To DR. PRIMROSE.

Dear Sir,—I am desirous of thanking you for the interesting account in this month's number of the BOY'S WONDER BOOK of the Maroons of Jamaica. At such a time as the present, when the sad events that have recently happened in Jamaica are occupying so much of the public mind, the account you give comes most favourably, and to us boys, although we are hardly supposed to take such interest as our seniors in such matters, still we view all such things with some feeling, and are desirous of being informed on all subjects that concern the welfare of our country and her dependencies. I hope, Sir, you will keep us up to the mark in all and such like subjects—for they really concern us. I look with considerable interest to the continuation of the account of the Maroons which I hope to find in your March number. Again thanking you I remain, Sir, yours respectfully,

FRANK.

[Our young friend will see that the account is continued and concluded in this number. We shall be quite ready to adopt his suggestion, and to bring before our readers all matters of interest on which it is desirable they should be informed.]

TO OUR READERS.

ADDRESS.

To the youthful mind the World is full of Wonders. Every unfamiliar thing is wonderful. Every fact in the Book of Nature, every event in the Annals of History, every incident in the Lives of the Good and Great, is a marvel to young minds, and needs no gloss to render it attractive. It is an error to suppose that the dawning intellect requires morbid and sensational intellectual food. Youth is the most susceptible period of life, when the impressions received, the tastes formed, and opinions adopted, mould the character for good or evil. The boy is the father of the man. How important then it is that first impressions should be sound and truthful, for unlearning is a most difficult, and nearly impossible task.

With a view of inspiring a taste for whatever is beautiful in Nature, admiration for the excellences of Art, emulation of the conduct of those who have contributed by their example to the ennobling of mankind, and an interest in the patient and persevering labours of those who have devoted their lives to exploring the paths of Science, we now present our WONDER BOOK to the rising generation.

In our efforts to instruct and amuse, truthfulness will be our chiefest guide. In the unperverted youthful mind, a love of truth is instinctive. To gratify this love we shall draw as much as possible from the pages of fact and experience, without, however, deserting the flowery paths of pure fiction. In our WONDER BOOK, fiction will be given for what it really is, and never disguised as truth.

The youth of each succeeding generation occupies a higher platform than its predecessors. In order to successfully grapple with the future, it needs new guides and interpreters, animated by the spirit of the present hour rather than by the traditionary forms of the past. In the WONDER BOOK it will be our aim to lead our youthful readers through easy and pleasant paths to an appreciation of this new world of Nature and Art. The results of explorations into the three kingdoms of Nature, the wonders of the Heavens, the Atmosphere, and the Ocean, will be presented in new and attractive guise, by the pens of the ablest writers, The Historian and the Biographer have culled fresh facts, Travellers have enriched Geographical Science with many new and marvellous pages, which will be duly garnered into our WONDER BOOK. We shall also supply material for the exercise of rational ingenuity and profitable industry, for healthful recreation and amusement, and, in short, by every means in our power, strive to excite in the minds of our readers ennobling thoughts, pure tastes, and a desire to imitate the noble examples of industry, integrity, and self-denial we shall place before them.

The WONDER BOOK is printed in a new, clear, readable type; the wood-cut illustrations are of the highest excellence: in addition to which, each number is illustrated with a beautiful design, printed in colours, illustrating some curious phenomenon of Nature or feature in Natural History.

The topics that will be successively treated in the WONDER BOOK are almost too numerous to be detailed in a Prospectus. We may, however, mention Natural History, Science, History, Biography, Mechanical Recreations, Games and Sports, Photography, Natural Magic, Travels and Adventures, Manners and Customs, Legends and Fables, the Art of Painting, Engraving, Music, Poetry, and the Wonders of the Heavens and of the Ocean.

As exercises for ingenuity, we propose to substitute for Riddles, Puzzles, &c., the various examination papers for Candidates for the various appointments in the Civil Services, as being equally amusing, and far more profitable and instructive. Prizes will be awarded for special subjects submitted to competition among the subscribers to the BOYS' WONDER BOOK.



Vincent Br

DONATI'S COMET AS IT APPEARED IN 1858.

COMETS.

COMETS, when they now appear, excite our curiosity, wonder, and admiration. In the days when ignorance prevailed and superstition swayed men's minds more than they ever can again, comets were objects of fear and terror, either on account of the rarity of their appearance in the heavens, or on account of the extraordinary appearance, and the frequently menacing aspect of their tails.

Their separate existence, so to speak, in the starry heavens, the singularity of their movements, the eccentricity of their forms, were, in fact, of a nature to excite mysterious terrors, for science had not then penetrated the secrets of celestial mechanism. People regarded comets as the presage of great calamities, and justified their puerile fears by attributing to them the sinister events that occurred, which preceded or immediately followed their appearance.

It was pretended that the death of Julius Cæsar was announced by the comet which appeared in the 44th year of our ; era the cruelties of Nero by that of the year 64 ; the origin of Muhammadanism by that of the year 603 ; it was thought that its tail was shaped like a Turkish scimitar. The invasion of Tamerlane was attributed to the comet of the year 1240; and the fall of the Greek empire by that of 1456.

Seneca, alone, or almost alone, opposed his powerful logic to the superstitious ideas of his contemporaries, and those who had lived in pre-centuries; according to his notions, comets moved in regular paths prescribed by nature, and glancing towards the future, he affirmed, that posterity would be astonished that his century had mistaken truths so palpable, but he had the whole world against him.

By the theoretical works of Newton and the calculations of Halley, the prediction of Seneca was accomplished ; comets, or some of them, at least, travel in regular orbits. Their return may be predicted with tolerable accuracy, and they cease to be accidental appearances ; they are real celestial bodies with a regular course. The marvellous ceased, or rather the wonder was transferred to the daring genius who penetrated the mysteries of nature, for next to the creative and organizing power of the universe, the first rank belongs to the intelligence which has penetrated the design of the Creator.

Thus, in the times in which we now live, these imaginary terrors are dissipated by the progess of the sciences, as well as by the little accordance found to exist between events and predictions.

According to a popular saying, the comet of 1664 ought to have been the death of all the sovereigns of the Western empire : but not one died in that year

Those which have appeared more recently amid so many important political events, have not been accused of causing them. On the contrary, abundant harvests and a vintage of excellent quality accompanied the comet of 1811, the aspect of which was terrifying.

From the earliest ages of astronomy until the invention of the telescope, only the most brilliant comets could be observed : scarcely a year passes now without one or two being seen.

A certain number of these stars escape observation: when they traverse the sky during the daytime, they can become visible only by the rare event of a considerable eclipse of the sun.

According to Seneca, this is what occurred 60 years before the birth of Jesus Christ: a total eclipse allowed an enormous comet to be seen in the vicinity of the sun.

Others, however, were sufficiently brilliant to be seen at noon-day: such were those of the year 44 before Christ, and of the years 1402 and 1532.

The word *comet* comes from the Greek, *coma*, hair—hairy star. The luminous point which usually forms the centre of a comet is called its *nucleus*. The kind of luminous aureola which surrounds the nucleus on all sides, and the luminous train which accompanies most comets, form what is called the *tail*.

The nature of these wandering stars is still a problem to astronomers. Comets describe round the sun ellipses so long that they appear to travel almost in a straight line. The position of these ellipses varies greatly: these stars move in every direction.

As they approach and depart from the sun, they experience extreme alternations of cold and heat. The comet of 1680 was a hundred and sixty-six times nearer to the sun than our earth is: thus the heat it received was twenty-eight thousand times greater than that we experience on the earth, a temperature many thousand times greater than that of iron in a state of fusion. The comet of 1843 passed so near to the sun, that it had to endure a temperature nine million times higher than that of the regions surrounding our globe.

Comets do not usually become visible to us until they have arrived at that part of their orbit which is nearest to the sun; then their course becomes much accelerated, and they soon disappear from our view.

Their return, on the contrary, is often delayed several centuries, because as these stars remove farther and farther from the sun, their progress, like that of the planets, becomes much slower.

The rapidity of the comet of 1682, calculated by Newton, was nearly 293,000 leagues an hour; it went down into the remotest regions of space and made a right angle with the orbit of the earth.

The greater part of the comets observed appear only as masses of vapour, rounded, or slightly oval, denser towards the centre, but without distinct mass, in no respect resembling solid bodies.

The stars remain visible even when they are covered with that portion of the comet which appears most dense; still a light cloud causes them to disappear from our sight. In some, however, by the aid of a powerful telescope, an extremely small nucleus has been perceived.

The extraordinary volume of comets is probably due to the feeble attraction which the nucleus of such small volume opposes to the elasticity of the gaseous particles, for attraction is in direct ratio to the masses, that is to say, the more molecules a body contains under a given volume, the more it attracts surrounding bodies. If the mass of our earth was reduced, the atmosphere would immediately occupy a greater space.

Halley calculated in 1705 the orbits of several comets, according to the system of attraction laid down by Newton. He recognized that the comet of 1531, of 1607, and of 1682 was the same that ought to reappear in 1759. His prediction was fully verified. As had been previously calculated, this comet reappeared in 1835, and it will reappear in 1911 ; the larger axis of its orbit is 1,239,000,000 leagues ; its period is seventy-seven years five months.

Newton's comet has a period of about 575 years : by tracing back seven periods, certain commentators have calculated that this comet passed near the earth in the year 2349 before Jesus Christ—the date assigned by Moses to the deluge. This comet was not, however, the cause of the deluge This system has been amply refuted in various works.

We may remark, however, that the predictions of the returns of comets are not always exact : thus, Halley's comet reappeared in 1759 it is true, but not until some months later than expected, on account of the retarding action of neighbouring planets—a delay that was announced beforehand by the astronomer Clairault, and presented a victorious verification of the theory of attraction, which had not been accepted by all astronomers.

The large and beautiful comet of 1556, the return of which was calculated for 1848, has not yet appeared. An astronomer of Middelbourg, by immense labour, calculated the secondary influence of the planets upon the return of this great comet, found as the result that it would be delayed ten years, and that with an uncertainty of two years only, we should have this comet in 1858. A comet, known as Donati's comet, made its appearance on the 2nd of June in that year, which may have been the one expected.

The comet which appeared in September 1853 was 26,700,000 leagues from the earth; it travelled 150 leagues a minute, 9000 an hour, or 216,000 a day; its diameter was 2666 leagues, nearly the same as that of our earth ; its tail was 1,500,000 leagues in length, and in breadth nearly equal to the distance between the moon and the earth—viz., 83,330 leagues.

It is not impossible that some day or other a comet may come into collision with our earth ; there are, however, a thousand chances to one that such a catastrophe will never happen.

If, without exactly coming into contact with our globe, a comet were to pass sufficiently near to act upon it by attraction in the same manner as the moon to produce tides, it might in that case cause a general inundation ; it might also, if it possessed a high temperature, cause a general drying up of the surface of the earth and universal conflagration ; but we may remark on this head that comets being of a very feeble density, and the effects of attraction being proportional not to the volumes but to the masses, the action of the comet would be in general very feeble ; the rapidity of its motion would also contribute to weaken its action.

However uncertain in other respects the path of comets may appear to us, the powerful Hand which has impressed all the works of creation with order and stability, has imposed upon each of these wandering stars, such a path a to render it impossible to produce confusion in the universe.

THE BATTLE OF LEPANTO.

IT was two hours before dawn on Sunday, the memorable seventh of October, 1571, when the fleet weighed anchor. The wind had become lighter, but it was still contrary, and the galleys were indebted for their progress much more to their oars than to their sails. By sunrise they were abreast of Curzolares, a cluster of huge rocks, or rocky islets, which, on the north, defends the entrance of the Gulph of Lepanto. The fleet moved laboriously along, while every eye was strained to catch the first glimpse of the hostile navy. At length the watch from the foretop of the *Real* called out "A sail!" and soon after announced that the whole Ottoman fleet was in sight. Several others, climbing up the riggings, confirmed his report; and in a few moments more, word was sent to the same effect by Andrew Doria, who commanded on the right. There was no longer any doubt; and Don John, ordering his pendant to be displayed at the mizzen-peak, unfurled the great standard of the League, given by the Pope, and directed a gun to be fired, the signal for battle. The report, as it ran along the rocky shores, fell cheerily on the ears of the Confederates, who, raising their eyes towards the consecrated banner filled the air with their shouts.

The principal captain now came on board the *Real* to receive the last orders of the Commander-in-chief. Even at this late hour there were some who ventured to intimate their doubts of the expediency of engaging the enemy in a position where he had a decided advantage. But Don John cut short the discussion. "Gentlemen," he said, "this is the time for combat, not for counsel." He then continued the dispositions he was making for the assault.

He had already given to each commander of a galley written instructions as to the manner in which the line of battle was to be formed, in case of meeting the enemy. The armada was now formed in that order. It extended on a front of three miles. Far on the right a squadron of sixty-four galleys was commanded by the Genoese, Andrew Doria, a name of terror to the Moslems. The centre, or *battle*, as it was called, consisting of sixty-three galleys, was led by John of Austria, who was supported on the one side by Colonna, the Captain-general of the Pope, and on the other by the Venetian Captain-general Veniero. Immediately in the rear was the galley of the *Comendador* Requesens, who still remained near the person of his former pupil; though a difference which arose between them on the voyage, fortunately now healed, showed that the young Commander-in-chief was wholly independent of his teacher in the art of war. The left wing was commanded by the noble Venetian, Barberijo, whose vessels stretched along the Ætolian shore, which, to prevent his being turned by the enemy, he approached as near as, in his ignorance of the coast, he dared to venture. Finally, the reserve, consisting of thirty-five galleys, was given to the brave Marquis of Santa Cruz, with directions to act on any part where he thought his presence was most needed. The smaller craft,

some of which had now arrived, seem to have taken little part in the action, which was thus left to the galleys.

Each commander was to occupy so much space with his galley as to allow room for manœuvring it to advantage, and yet not enough to enable the enemy to break the line. He was directed to single out his adversary, to close at once with him, and board as soon as possible. The beaks of the galleys were pronounced to be a hindrance rather than a help in action. They were rarely strong enough to resist a shock from the enemy; and they much interfered with the working and firing of the guns. Don John had the beak of his vessel cut away, and the example was speedily followed throughout the fleet, and, as it is said, with eminently good effect. It may seem strange that this discovery should have been reserved for the crisis of a battle.

When the officers had received their last instructions, they returned to their respective vessels; and Don John, going on board of a light frigate, passed rapidly through that part of the armada lying on his right, while he commanded Requesens to do the same with the vessels on his left. His object was to feel the temper of his men, and rouse their mettle by a few words of encouragement. The Venetians he reminded of their recent injuries. The hour of vengeance, he told them, had arrived. To the Spaniards, and other confederates, he said, "You have come to fight the battle of the cross,—to conquer or die. But whether you die or conquer, do your duty this day, and you will secure a glorious immortality." His words were received with a burst of enthusiasm which went to the heart of the commander, and assured him that he could rely on his men in the hour of trial. On his return to his vessel, he saw Veniero on his quarter-deck, and they exchanged salutations in as friendly a manner as if no difference had existed between them. At a time like this, both these brave men were willing to forget all personal animosity, in a common feeling of devotion to the great cause in which they were engaged.

The Ottoman fleet came on slowly and with difficulty. For, strange to say, the wind, which had hitherto been adverse to the Christians, after lulling for a time, suddenly shifted to the opposite quarter, and blew in the face of the enemy. As the day advanced, moreover, the sun, which had shone in the eyes of the Confederates, gradually shot its rays into those of the Moslems. Both circumstances were of good omen to the Christians, and the first was regarded as nothing short of a direct interposition of Heaven. Thus ploughing its way along, the Turkish armament, as it came nearer into view, showed itself in greater strength than had been anticipated by the allies. It consisted of nearly two hundred and fifty royal galleys, most of them of the largest class, besides a number of smaller vessels in the rear, which, like those of the allies, appear scarcely to have come into action. The men on board, including those of every description, were computed at not less than a hundred and twenty thousand. The galleys spread out, as usual with the Turks, in the form of a regular half moon, covering a wider extent of surface than the combined fleet, which they somewhat exceeded in numbers They presented, indeed, as they

drew nearer, a magnificent array, with their gilded and gaudily painted prows, and their myriads of pennons and streamers fluttering gaily in the breeze, while the rays of the morning sun gleamed on the polished scimitars of Damascus, and on the superb aigrettes of jewels which sparkled in the turbans of the Ottoman chiefs.

In the centre of the extended line, and directly opposite to the station occupied by the Captain-general of the League, was the huge galley of Ali Pasha. The right of the armada was commanded by Mehemet Siroco, Viceroy of Egypt, a circumspect as well as courageous leader, the left by Uluch Ali, Dey of Algiers, the redoubtable corsair of the Mediterranean. Ali Pasha had experienced a similar difficulty with Don John, as several of his officers had strongly urged the inexpediency of engaging so formidable an armament as that of the allies. But Ali, like his rival, was young and ambitious. He had been sent by his master to fight the enemy, and no remonstrances, not even those of Mehemet Siroco, for whom he had great respect, could turn him from his purpose.

He had, moreover, received intelligence that the allied fleet was much inferior in strength to what it proved. In this error he was fortified by the first appearance of the Christians, for the extremity of their left wing, commanded by Barberijo, stretching behind the Ætolian shore, was hidden from his view. As he drew nearer, and saw the whole extent of the Christian lines, it is said his countenance fell. If so, he still did not abate one jot of his resolution. He spoke to those around him with the same confidence as before on the result of the battle. He urged his rowers to strain every effort. Ali was a man of more humanity than often belonged to his nation. His galley slaves were all, or nearly all, Christian captives; and he addressed them in this neat and pithy manner: "If your countrymen win this day, Allah give you the benefit of it! Yet, if I win it, you shall have your freedom. If you feel that I do well by you, do then the like by me."

As the Turkish admiral drew nearer, he made a change in his order of battle by separating his wings farther from his centre, thus conforming to the disposition of the allies. Before he came within cannon-shot, he fired a gun by way of challenge to his enemy. It was answered by another from the galley of John of Austria. A second gun discharged by Ali was as promptly replied to by the Christian commander. The distance between the two fleets was now rapidly diminishing. At this solemn hour a death-like silence reigned throughout the armaments of the confederates. Men seemed to hold their breath, as if absorbed in the expectation of some great catastrophe. The day was magnificent. A light breeze, still adverse to the Turks, played on the waters, somewhat fretted by contrary winds. It was nearly noon; and as the sun, mounting through a cloudless sky, rose to the zenith, he seemed to pause, as if to look down on the beautiful scene, where the multitude of galleys, moving over the water, showed like a holiday spectacle rather than a preparation for mortal combat.

The illusion was soon dispelled by the fierce yells which rose in the air from

the Turkish armada. It was the customary war-cry with which the Moslems entered into battle. Very different was the scene on board of the Christian galleys. Don John might be there seen, armed cap-à-pie, standing on the prow of the *Real*, anxiously awaiting the coming conflict. In this conspicuous position, kneeling down, he raised his eyes to heaven, and humbly prayed that the Almighty would be with his people on that day. His example was speedily followed by the whole fleet. Officers and men, all falling on their knees, and turning their eyes to the consecrated banner which floated from the *Real*, put up a petition like that of their commander. They then received absolution from the priests, of whom there were some in each vessel; and each man, as he rose to his feet, gathered new strength from the assurance that the Lord of Hosts would fight on his side.

When the foremost vessels of the Turks had come within cannon-shot, they opened a fire on the Christians. The firing soon ran along the whole of the Turkish line, and was kept up without interruption as it advanced. Don John gave orders for trumpet and atabal to sound the signal for action; and a simultaneous discharge followed from such of the guns in the combined fleet as could bear on the enemy. Don John had caused the *galeazzas* to be towed some half a mile ahead of the fleet, where they might intercept the advance of the Turks. As the latter came abreast of them, the huge galleys, their broadsides right and left, and their heavy ordnance produced a startling effect. Ali Pasha gave orders for his galleys to open on either side, and pass without engaging these monsters of the deep, of which he had had no experience. Even so their heavy guns did considerable damage to the nearest vessels, and created some confusion in the Pasha's line of battle. They were, however, but unwieldy craft, and having accomplished their object, seem to have taken no further part in the combat. The action began on the left wing of the allies, which Mehemet Siroco was desirous of turning. This had been anticipated by Barberijo, the Venetian Admiral, who commanded in that quarter. To prevent it, as we have seen, he lay with his vessels as near the coast as he dared. Siroco, better acquainted with the soundings, saw there was space enough for him to pass, and darted by with all the speed that oars and wind could give him, he succeeded in doubling on his enemy. Thus placed between the two fires, the extreme of the Christian left, fought at terrible disadvantage. No less than eight galleys went to the bottom. Several more were captured. The brave Barberijo, throwing himself into the heat of the fight, without availing himself of his defensive armour, was pierced in the eye by an arrow, and though reluctant to leave the glory of the field to another, was borne to his cabin. The combat still continued with unabated fury on the part of the Venetians. They fought like men who felt that the war was theirs, and who were animated not only by the thirst for glory, but for revenge.

Far on the Christian right, a manœuvre similar to that so sucessfully executed by Siroco was attempted by Uluch Ali, the Viceroy of Algiers. Profiting by his superiority of numbers, he endeavoured to turn the right wing of the

Confederates. It was in this quarter that Andrew Doria commanded. He also had foreseen this movement of his enemy, and he succeeded in foiling it. It was a trial of skill between the two most accomplished seamen in the Mediterranean. Doria extended his line so far to the right, indeed, to prevent being surrounded, that Don John was obliged to remind him that he left the centre too much exposed. His dispositions were so far unfortunate for himself, that his own line was thus weakened, and afforded some vulnerable points to his assailant. These were soon detected by the eagle eye of Uluch Ali; and like the king of birds swooping on his prey, he fell on some galleys separated by a considerable interval from their companions, and sinking more than one, carried off the great *Capitana* of Malta in triumph as his prize.

While the combat thus opend disastrously to the allies both on the right and on the left, in the centre they may be said to have fought with doubtful fortune. Don John had led his division gallantly forward. But the object on which he was intent was an encounter with Ali Pasha, the foe most worthy of his sword. The Turkish commander had the same combat no less at heart. The galleys of both were easily recognized, not only from their position, but from their superior size and richer decoration. The one, moreover, displayed the holy banner of the league; the other the great Ottoman standard. This, like the ancient standard of the Caliphs, was held sacred in its character. It was covered with texts from the Koran, enblazoned in letters of gold, with the name of Allah inscribed upon it no less than twenty-eight thousand nine hundred times. It was the banner of the Sultan, having passed from father to son since the foundation of the imperial dynasty, and was never seen in the field unless the Grand Seignior or his lieutenant was there in person.

Both the Christian and the Moslem chiefs urged on their rowers to the top of their speed. Their galleys soon shot ahead of the rest of the line, driven through the boiling surges as by the force of a tornado, and closing with a shock that made every timber crack, and the two vessels quiver to their very keels. So powerful, indeed, was the impetus they received, that the Pasha's galley, which was considerably the larger and loftier of the two, was thrown so far upon its opponent that the prow reached the fourth bench of rowers. As soon as the vessels were disengaged from each other, and those on board had recovered from the shock, the work of death began. Don John's chief strength consisted in some three hundred Spanish arquebusiers, called from the flower of his infantry. Ali, on the other hand, was provided with a like number of Janizaries. He was also followed by a smaller vessel, in which two hundred more were stationed as a *corps de reserve*. He had, moreover, a hundred archers on board. The bow was still much in use with the Turks, as with the other Moslems.

The Pasha opened at once on his enemy a terrible fire of cannon and musketry. It was returned with equal spirit, and much more effect, for the Turkish marksmen were observed to shoot over the heads of their adversaries. Their galley was unprovided with the defences which protected the sides of

the Spanish vessels, and the troops, huddled together on their lofty prow, presented an easy mark to their enemy's balls ; but though numbers of them fell at every discharge, their places were soon supplied by those in reserve. Their incessant fire, moreover, wasted the strength of the Spaniards ; and, as both Christian and Mussulman fought with indomitable spirit, it seemed doubtful to which side the victory would incline.

The affair was made more complicated by the entrance of other parties into the conflict. Both Ali and Don John were supported by some of the most valiant captains in their fleets. Next to the Spanish commander, as we have seen, were Colonna and the veteran Veniero, who, at the age of seventy-six, performed feats of arms worthy of a paladin of romance. Thus a little squadron of combatants gathered around the principal leaders, who sometimes found themselves assailed by several enemies at the same time. Still the chiefs did not lose sight of one another ; but beating off their inferior foes as well as they could, each refusing to loosen his hold, clung with mortal grasp to his antagonist.

Thus the fight raged along the whole extent of the entrance of the Gulf of Lepanto. If the eye of the spectator could have penetrated the cloud of smoke that enveloped the combatants, and have embraced the whole scene at a glance, he would have beheld them broken up into small detachments, engaged in conflict with one another, wholly independently of the rest, and, indeed, ignorant of all that was doing in other quarters. The volumes of vapour, rolling heavily over the waters, effectually shut out from sight whatever was passing at any considerable distance, unless when a fresher breeze dispelled the smoke for a moment, or the flashes of the heavy guns threw a transient gleam over the dark canopy of battle. The contest exhibited few of those enlarged combinations and skilful manœuvres to be expected in a great naval encounter. It was rather an assemblage of petty actions, resembling those on land. The galleys, grappling together, presented a level arena, on which soldier and galley slave fought hand to hand ; and the fate of the engagement was generally decided by boarding. As in most hand-to-hand contests, there was an enormous waste of life. The decks were loaded with corpses, Christian and Moslem lying promiscuously together in the embrace of death. Instances are given where every man on board was slain or wounded. It was a ghastly spectacle, where blood flowed in rivulets down the sides of the vessels, staining the waters of the gulf for miles around.

It seemed as if some hurricane had swept over the sea, and covered it with the wreck of the noble armaments which a moment before were so proudly riding on its bosom. Little had they left now to remind one of their late magnificent array, with their hulls battered and defaced ; their masts and spars gone, or fearfully splintered by the shot ; their canvas cut into shreds, and floating wildly on the breeze, while thousands of wounded and drowning men were clinging to the floating fragments, and calling piteously for help. Such was the wild uproar which had succeeded to the Sabbath-like stillness that two hours before had reigned over these beautiful solitudes !

(To be continued).

MY LECTURE ON ELECTRICITY.

SOME few years ago a friend presented me with an Electrifying Machine; it had long been my ambition to possess the means of producing miniature lightning, and I shall not forget the pleasure I had in taking the apparatus out of the box and arranging it on a table. For a time it was a source of great amusement, but when its capabilities had been tried and tested for the fiftieth time, as you may imagine, its freshness wore off, and it was more and more seldom taken out of its case. Electricity such as this, is all very well in its way, but one can do nothing useful with it; now, if I had only a Galvanic Battery, I could blast rocks, and work a telegraph, so I thought. The wish which lay at the root of such cogitations was one day gratified. The same kind friend sent me a Smee's Battery, I already possessed an electro magnet and a medical coil machine, and I felt rich in natural philosophy, in one branch of it at any rate. Such treasures ought not to be buried, locked up in my private studio, I must not act the miser, but rather communicate to others of my abundance.

I will lecture on electricity. Having arrived at this bold determination I commenced vigorous preparation. I was only going to lecture to a few rustics in a village school room, still preparations must be made.

Every lecturer has an assistant, I had mine to hand, a boy home for the holidays. We went through all the experiments together, and being expert in pyrotechnics he made charges of gunpowder, carefully secured in bladders for sub-aquarian explosions. The first charge we tried was rather strong, for the water rose or leaped up into the air about twenty feet, the empty tub went *per saltem* about six, parting company with the bottom during the operation. This expériment was highly satisfactory, it taught my assistant that it would be judicious to use less powder: it was satisfactory too, to think, that it was better so than if this strong charge had been used at the lecture when it might have extinguished the lights and sent the shepherds and shepherdesses wet to bed.

Some additions were made to my stock of apparatus, which will be mentioned in their proper place; the day was announced, and all things were at length ready. A large table was covered with what to the rustics would seem mysterious paraphernalia. On my right stood the electrifying machine screwed to the table; on the left the galvanic battery; dispersed at intervals were the electro-magnet mounted on a stand, the coil, &c., &c., while purposely placed on the insulated stool—"In the main battle with his flaming crest" not the mighty Turnus, but the head of hair "towers above the rest," to the great amusment of the juveniles.

On the wall behind us, was suspended a large diagram of the electric telegraph, looking very business-like, and giving a finish to the whole.

I intended that the lecture should be a written one and had written a great part of it, when I thought a rehearsal would be advisable. I had inserted a black cross wherever an illustration or experiment was to be given. These black crosses were so numerous, and it was so confusing after an experiment to recover the place, that I was obliged to discard the written lecture, and only made a list of the various branches of the subject, that I might take them in due order.

When the company had arrived and all were seated, I became conscious that it was time to begin. It requires some courage to make a first attempt in public in a new line, therefore, to regain confidence, I did what lecturers often do, I walked round the table, I moved this thing an inch or two, and turned that one round, I looked at the battery and examined the wires to see if they were in position, then I turned to my assistant and spoke to him in an undertone. When I had done all that was becoming in this diplomatic and discursive way, and I saw there was no help for it, I began.

Electricity, I said, is a science; we will endeavour to make it the means of an evening's amusement, and I hope also instruction. As a science it is modern, though some of its properties were known to the ancients. It takes its name from the Greek word *electron*, amber, merely because a great philosopher (Thales, one of the seven wise men of Greece. He was a great astronomer, the first who calculated a solar eclipse. He discovered the solstices and equinoxes, and found that a year contained 365 days. He died at the age of ninety-six, about the year 550 B.C.), 2000 years ago found that amber when rubbed attracted light bodies. A piece of glass or sealing wax will do the same. I take this stick of sealing wax and draw it briskly a few times through a silk handkerchief, and now it attracts these little bits of paper and lifts them from the table. It is not more than 150 years since electricity began to be known, and even then the knowledge was very imperfect. For instance, a Mr. Grey was in the habit of rubbing a glass tube in order to attract threads and light bodies, he found his tube did not act well unless quite clean, perhaps the inside was damp, but he only thought of dust, and to keep the dust out, he stopped the ends of his tube with corks, and then he found that the corks attracted a thread just the same as the glass; he next fixed a joint of a fishing rod into the tube, and then the whole fishing rod, and then a line and ball at the end of it, all with perfect success. The ball at the end still attracted light bodies when the tube was excited by friction. Delighted with the discovery he went to a friend, then stiled the Rev. Granville Wheler, Esq., but whom we should now call the Hon. and Rev. In Mr. Wheler's house there was a long gallery, there they went and suspended by loops from the ceiling a long line from end to end of the gallery. They tried the effect; there was no result, a total failure. This will not do, said one of them, our loops are too thick and heavy (for they suspended the thread by iron wire, which of course drew off all the electricity), so they tried next the smallest line they could get, and this luckily was common sewing silk; all was now right again; but so they blundered on till they found that silk would

not conduct electricity, and then came the discovery of conductors and non-conductors.

Electricity is of three kinds—*Frictional*, such as is produced by rubbing; in this machine we have a glass cylinder, against which, as it is turned round a pad or rubber presses. *Chemical*, produced by this battery; and thirdly, *Magnetic*, of which the needle in the compass is a representative.

Again, each kind of electricity has two properties, called negative and positive. Electricity seems to pervade everything, friction disturbs it, a few turns of the machine and we have charged this Leyden jar; there is more electricity inside than outside; by means of the discharger we connect the inside and outside, and the pent up electricity within rushes out to supply the deficiency without, and restore the balance; this is done with a flash and cracking sound, it is, in fact, thunder and lightning in a small way. In every thunder storm the electricity which has been disturbed by the heat or other atmospherical conditions, is rushing from the clouds, where it is accumulated, to the earth or other clouds where there is a deficiency.

There is this peculiarity too, that two things positively charged with electricity do not attract, but repel each other. If we charge this common tumbler with electricity by holding it over the end of the prime conductor, and then place it over these pith balls, they immediately begin a lively dance; they are attracted to the top and sides of the glass, and receive a charge of positive electricity; they are then repelled and fall down on the table, where they discharge or lose the electricity they had received; they are then again attracted to the glass, and this goes on till all the electricity in the tumbler is dispersed. In the same way these little pith figures are made to dance under a metal plate suspended from the prime conductor, one is dancing on his head; he has been made top heavy, and gravity rules his merry movements.

You observe in the machine we have points attached to the conductor to collect the electricity. Electricity has a great fancy for pointed conductors, points collect it, and points disperse it. We have here four wires with the points all turned in one direction, it is called a whirl; we fix it to the conductor, and set the machine in motion, the whirl at the same time turns rapidly round, the electricity escaping from the four points strikes the air, and the arms of the whirl are forced round by the reaction. The electricity may be felt by the hand like a breath of wind blowing from the points; if we darken the room by turning down the lamp, it will be visible to the eye; it appears like a ring of light. If you now turn to the cylinder you will see the electricity given off like brushes of light.

There is another and better contrivance for showing the light of the electric spark. It is a plate of glass on which fine narrow slips of tinfoil are pasted; they are joined at the ends alternately so as to form a continuous conductor. The tinfoil is cut through in certain places, and as at every break in the conductor we have a spark, these breaks are so arranged that the sparks may form the word FIRE. The electric spark passes through the whole of the tinfoil, entering at one end and going out at the other, giving a vivid light at

each break in the tinfoil one after the other, and yet so instantaneously that the whole are seen at one and the same moment forming the word. The instantaneousness of the electric spark will be evident by another experiment; here is a disc of cardboard painted black and white in alternate bars, when this is made to turn rapidly round, no pattern is visible, it is all confused; but now we illuminate the disc by the light of the electric spark, the black and white bars are visible, and for the instant the disc seems to be standing still, but it is not so, it is rapidly revolving all the while. The duration of the electric spark has been computed to be not more than the millionth part of a second—an inconceivable moment of time—so short, in fact, that the disc did not revolve through any appreciable space while it lasted, and consequently appeared motionless. It is well known that all objects in motion seen at night-time by lightning appear to be at rest. The ship in a storm illuminated by the lightning's flash seems to the eye as still and inanimate as a picture.

Here is a little fellow (taking the head of hair) who is afraid of thunder storms, we will fix him on to the conductor; see, his hair stands on end, the personification of abject terror. The hair is charged with electricity, and would, if it could, fly away to any object within reach in order to discharge itself. Thus, it follows my hand which seems to attract it. This simple experiment excited roars of laughter. I therefore prolonged it more than it deserved; when the merriment had somewhat subsided I attempted some experiments on the insulated stool, but owing to the moisture in the air I found it impossible to obtain any degree of insulation. I had a spirit lamp burning under the cylinder of the electrical machine, which kept that free from damp, but on everything else in the shape of glass there was such a rapid condensation of vapour that even frequent rubbing with a dry cloth was ineffectual. I succeeded in giving a slight electric shock to about half a dozen volunteers, but beyond a simultaneous start and a determined opposition to a repetition of it, there were no means of ascertaining its effects upon the nerves.

This is a slight sketch of the first part of my lecture on frictional electricity. I said nothing about Faraday's experiments with high pressure steam, as I could not illustrate them. The friction of steam upon a cone was found by Faraday to produce electricity, having both quantity and intensity combined, whereas the ordinary machine produces electricity, intense indeed, but inconsiderable in quantity. The next branch of the subject, and the most important in electric science, is the development of electricity by chemical action—a means of producing it in such quantities, that, in comparison, all other methods are altogether insignificant.

THE WONDERS OF ELECTRICITY.

THE ELECTRIFIED KITE.

ON the 7th of June, 1756, M. de Romas, Judge of the Court of Norac, in Aquitain, and corresponding Member of the Royal Académie de Science, in Paris, being willing to try what would be the effect of electrifying a body raised to a considerable height in the air, prepared a paper kite, seven feet five inches in height, and three feet in its greatest breadth; its surface being about eighteen feet square. We give his own account:—

"The first trial I made with my kite was on the 14th of May, 1753; but though the erect bars were at times well electrified from the atmosphere that day, I could not excite the least spark from the kite, though I knew for certain it was perperfectly insulated. After divers reflections, I concluded the reason why I could excite no sparks from the string of the kite was, that, as there was little rain, the hempen string was not sufficiently wetted to make it a good conductor, unless the electricity were exceedingly strong.

"The day promising so well, I drew down my kite and oiled it all over as a security against rain, and run a small brass wire about the string, from one end to the other; but this additional improvement to my apparatus took up so much time that I could not pursue my trials any more that day. After several unsuccessful attempts, but *still persevering*, on the 7th of June, when it thundered in the west about one in the afternoon, I made a shift, about half an hour after two, to raise my kite 550 feet high above the ground, it reeving out 780 feet of string, which made an angle of nearly forty-five degrees with the horizon.

"The wind seemed to increase, which gave me hopes that the kite would not fall. I therefore tied a silk lace, of three feet and a half long, to the lower end of the string, and to the lower end of the lace I fastened a strong pendulum, whose weight was a large stone, under a pent-house outside the town. Besides this, to the string of the kite, near the silk lace, I hung a tin tube about an inch in diameter and a foot long, from whence to draw sparks as soon as the kite was electrified. The reason for fastening the silk to a pendulum was to prevent its dragging on the ground, and thereby taking up dust, in case the wind should slacken, while the pent-house secured it from rain, and to regulate the jerks which might be occasioned by sudden gusts of wind. After these dispositions, I was to try if the tin tube afforded any tokens of electricity; but as it was prudent, for a reason that will appear hereafter, not to approach the tin tube with a finger, a key, or anything of that nature, I prepared a little instrument better suited to the purpose. To one end of a glass tube, twelve inches long and a quarter of an inch in diameter, I fitted a little tin socket, rounded at the end like a woman's thimble, and from this socket hung a little wire, which touched the ground when I offered to draw a spark. The end of this contrivance was to enable me to excite a spark without any disagreeable sensation or shock in the hand which held the glass tube, through which the electric matter will not pass; but without the communication with the ground, by the wire scarce any spark could be drawn from the tin tube; so that laying hold of the end of the glass tube, and taking *care that the wire* dragged on the ground, I judged I might, without any incon-

venience, by advancing the butt end of the socket towards the tin tube, excite the largest and brightest sparks; and, indeed, everything not only succeeded to my expectations, but I was convinced, in an extraordinary manner, how necessary a precaution I had taken.

"The sparks at first were not at all unlike those which we get by means of a good globe, and were occasioned by some small clouds detached from the grand storm. And as, at that very time, there was no appearance of anything very extraordinary, I laid aside the little glass instrument (which hereafter I shall call the *exciter* and drew sparks several times with a key, and sometimes with my bare finger. The by-standers, encouraged by my example, did the like, and there was scarcely any of them that did not draw some sparks; soon after this electricity was interrupted, the smallest clouds being passed over. The electricity being again revived after a pretty long intermission, every one resumed the former exercise with fingers and keys or their swords; and I attempting the like the next moment with the knuckle of my right hand, received so terrible a shock, that I felt in all the fingers of that hand, in my wrist, elbow, shoulders, abdomen, both knees, and the middle of my feet; such a shock as I am apt to think, was never produced by the best globe and two large glass jars, coated after Dr. Beesis's manner.

"Several of the company observing the convulsive motions I was in, were satisfied of the violence of the commotion, and yet ventured to join hands, but without joining a circuit, which could not be done, but with a phial, and the shock was felt as far as the feet of the fifth person.

"When these gentlemen had informed me of what they felt, I advised them not to expose themselves any further. The storm advanced, and grew more and more violent, for though not one drop of rain had yet fallen, there was over the zenith of the kite, and near 60 degrees round it black clouds, which made me dread a sudden gust of electricity, which might bring on some fatal accident.

"I took myself the advice I had just given to others; I looked upon it, as unsafe to draw any more sparks without the *exciter*. Having brought it within four inches from the tin tube, a spark issued out full an inch long, and two lines thick. Returning a second time, I drew a second at the distance of five or six inches at the least, which was two inches long and thick in proportion, in a word I drew four or five more, much of the same dimensions. Some little time after they appeared not sparks, but rather flakes of fire, which were excited at the distance of a foot, being at least three inches long, and a quarter of an inch thick; the snapping of these was heard above two hundred paces.

"Whilst I remained in this situation, I felt as it were a cob-web on my face, though I was about three feet from the string of the kite. I did then believe it was not safe to stand so near, and called aloud to all the company to retire, as I did myself, about two feet.

"Thinking myself now secure enough, and not being incommoded by anybody very near me, my first care was to take notice what passed among the clouds which were immediately over the kite, I could perceive no lightning there or anywhere else, nor scarcely the least noise and thunder, nor any rain at all. The wind was west and pretty strong, which raised the kite at least one hundred feet higher than at the first experiment.

"After casting my eyes on the tin tube, which was about three feet distant from the ground, I saw three straws, one of which was about a foot long, a second four or five inches, and a third three or four inches, which straws being erect and touching the ground with their lower extremities performed a circular dance, like puppets under the tin tube, without touching one another.

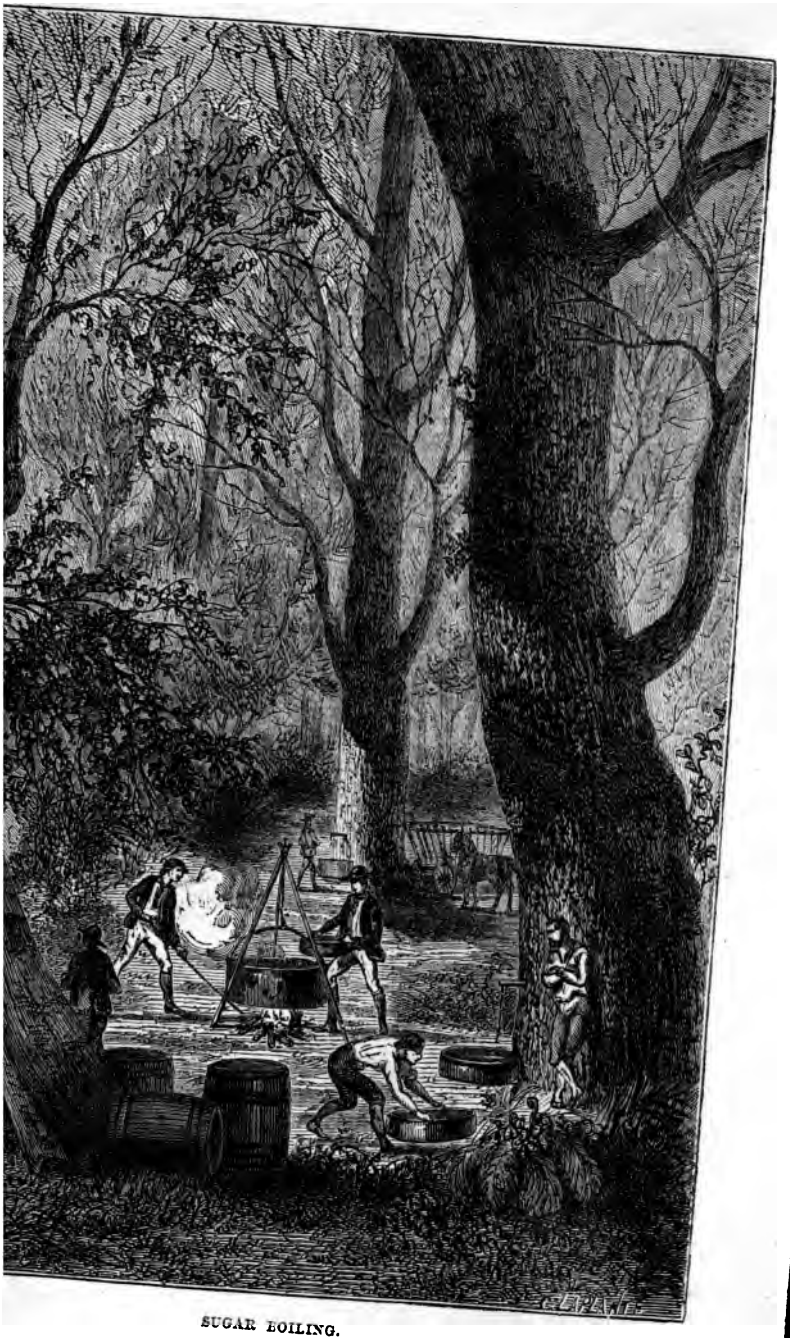
"This little spectacle, which much delighted the company, lasted a quarter of an hour, after which some drops of rain falling, I perceived again the sensation of the cobwebs on my face, and heard at the same time a continued rustling noise like that of a small forge bellows. This was a further warning of the increase of the electricity. From the first instant that I perceived the dancing straws, I thought it advisable not to draw any more sparks, even with the exciter, and now I again entreated the company to spread themselves still wider asunder.

"I come now to the last act of our entertainment, which I must own made me tremble. The longest straw was attracted by the tin tube, upon which an explosion was first repeated, the noise indeed was not so loud as thunder, but greatly resembled it; some of the company compared it to an explosion of rockets, and others again to the violent crashing of large earthenware jars against a marble pavement; certain it is, it was heard in the heart of the city, notwithstanding the various noises there.

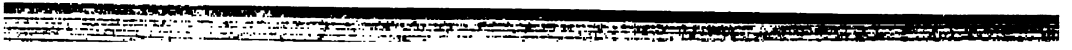
"The fire that was seen at the instant of the explosion, had the shape of a spindle eight inches long and five lines diameter, but this is not all, the straw which had occasioned the explosion followed the string of the kite. Some of the company saw it forty-five or fifty fathoms distance attracted and repelled accordingly, with this remarkable circumstance, that every time it was attracted by the string, flakes of fire appeared and cracks were heard, though not so loud as at the time of the explosion.

It is further remarkable, that from the time of the explosion to the end of the experiments: firstly, that no lightning at all was perceived, nor scarce any thunder heard. Secondly, that a kind of a sulphury smell was discerned which to me, seemed much like the luminous effluvia issuing out at the end of a bar of metal electrified by a globe. Thirdly, that round the string there appeared a permanent cylinder of light, three or four inches in diameter, this being an electric atmosphere, which was much more condensed near the string than at some distance from it, I question not that had it been night, it would have appeared to have been four or five feet diameter. Fourthly, after the experiments were over, a hole was discovered in the ground perpendicularly under the tube, an inch deep and half an inch wide, which probably was made by the large and long flakes which accompanied the explosion.

An end was put to the experiments by the falling of the kite, the wind being shifted into the east, and rain and hail coming on plentifully, whilst it was falling the string, coming foul of a pent-house, we drew it back about twenty toises, in hopes to clear it, and as soon as, by its rising, the string was disengaged from the pent-house, the person who held it felt such a shock in his hands, and a commotion through his whole body as obliged him instantly to let go, and the string chopping across the feet of some others, produced in them also a severe shock; and so the experiments ended.



SUGAR BOILING.



SUGAR.



EXTERIOR OF MILL.

SUGAR is a vegetable product, and exists in almost every plant during some period of its growth. There are many kinds of sugar, but the most important are those obtained from the *sugar-cane*, the *beet-root* the *maple tree*, and the *serglio*.

Sugar has been known from the earliest times in China and in Hindustan ;

the plant that yields it belongs to the family of *Granunacea*: it came originally from Hindustan, from whence it was carried, at the end of the thirteenth century to Arabia, then to Egypt, Asia Minor, and the Barbary States. In 1506 it was introduced to St. Domingo, from whence it spread over the whole of tropical America.

For several centuries, sugar was employed only as a medicine, and sold by the ounce by apothecaries, just as rhubarb and magnesia are sold at the present day; now the consumption in England amounts to twenty pounds per individual a year, and is steadily increasing.

The sugar cane is a kind of gigantic reed which is easily multiplied by cuttings. Planting the cuttings, then, is the first operation in the cultivation of the sugar-cane, and the extraction of the sugar contained in the juice of the plant. The young plants are then carefully weeded, and the off-shoots removed. The planting in the West Indies takes place from the month of September to November. The crop is gathered twelve or thirteen months afterwards.

The time of cutting the canes requires to be decided upon with great caution; for the sugar, which accumulates abundantly in the stem of this graminœ, is destined by nature to serve to the wants of the flowering of the plant. As soon as the flower expands a notable quantity of sugar has already disappeared, the canes must therefore be cut before the plant flowers. The time is favourable for the harvest when the juice of a freshly cut cane is semi-viscid, when the lower leaves fall off, and the stem is of a golden yellow colour.

It is so arranged that the canes on a plantation do not all ripen at the same time, but are cut during a space varying from one to three months.

The harvest, or cutting of the sugar-canes is a very interesting sight in the West Indies. The negroes, male and female, stand in rows, armed with large knives, which they at first employ to remove the parasitical plants which encumber the canes; they then proceed to cut off the upper portion of the cane, that is, the two last knots from the flower heads. This upper portion of the cane, contains very little sugar. These heads are carefully preserved and employed for planting new fields; then the plant is cut at a little distance above the ground, giving a stem about a yard in length, the negroes scrape the outside of the canes to remove its ligneous envelope and excrescences, this refuse is collected and employed as fuel.

The canes are collected into bundles, and immediately conveyed in carts to the mill.

It is of the utmost importance to proceed to press the juice from the canes with the least possible delay. If several days are allowed to elapse, the juice ferments

and is partly lost; therefore, care is taken to cut no more canes each day than can be immediately crushed at the mill.

In the West Indies, the sugar mill is generally worked by wind power, more rarely by water power, still more so by steam. Improvement makes very slow progress in sugar-growing countries, partly from indifference, partly from want of capital.

The mill-sails, turning by the impulse of the wind, set in motion by means of suitable gear, three large cast-iron cylinders, placed vertically over a stone basin. The motive power is communicated direct to the central cylinder only, which sets the other two cylinders in motion in a contrary direction. A negro taking up a handful of canes introduces them between the two cylinders, the motion of which carries them along, they become crushed, and the juice flows out. Another negro receives the pressed canes, and passes them between the opposite cylinder and the central one; they are then crushed a second time, and the juice still further expressed; but owing to the imperfection of the machinery employed, the canes still contain from 28 to 30 per 100 of their weight of sugar. And as fuel is generally very scarce on sugar plantations; this crushed cane is used as fuel to boil the juice.

The juice thus expressed from the cane is, in fact, sugared water; that is, water containing 20 per cent. of sugar, with 3 per cent. only of soluble foreign matters, but only 10 per cent. of crystallized sugar is usually obtained from the juice: the remaining 10 per cent. passes to the state of molasses. The crystallizable sugar is obtained from the juice in the following manner:—

The juice, after being pressed from the canes, is conveyed from the mill by means of a leaden pipe into a large boiler, where, after the addition of 3 per cent. of quick lime, it is boiled. The effect of the lime is to saturate some free acids which exist in the juice, and which under the influence of heat would soon *turn* the sugar, that is, convert it all into uncrystallizable sugar or molasses.

The boiling completes the purification of the juice. For by the action of heat the albumen contained in the juice of the cane is coagulated; and forms, by carrying up the foreign matters in suspension, a *scum*, which is carefully removed.

From this large boiler the juice is conveyed to another and smaller one, where the juice throws up fresh scum, which is removed.

After being submitted to this commencement of concentration, the juice is passed through a woollen strainer, and then conveyed into a third boiler, and from thence to a fourth and a fifth. By these successive evaporations the juice is brought to the state of *syrup*.

The boiling is now completed: that is, the liquid is sufficiently evaporated to allow the sugar to crystallize. The juice is conveyed to the *cooler*, a large and shallow vessel, and when it is nearly cold the syrup is put into casks, open at the top, but with their bottoms pierced with holes, temporarily closed with plugs. To hasten the cooling and favour the crystallization, the syrup is continually stirred with wooden laths.

Next day, a confused mass of small crystals is found in the cask, embedded in a thick dark liquid. The holes in the bottom of the cask are then unplugged to allow this liquid to flow out. The collected syrup is called molasses, and is conveyed to the distillery to be fermented and distilled, the spirit obtained being rum.

The dark crystals remaining in the cask constitute *raw sugar*, which, after being well drained and dried by exposure to the sun and air, is transferred to hogsheads and tierces for shipment to Europe.

This raw sugar is consumed in a variety of domestic and manufacturing processes. To convert it into lump or loaf sugar it has to be *refined*. The process is as follows:—The raw sugar is dissolved in water to separate the insoluble matters, sand, earth, or organic *débris*. This solution of sugar or syrup is mixed with animal charcoal or bone black to deprive it of its dark colour. Albumen, or white of egg thrown into the boiling syrup serves to clarify it. The colourless syrup is placed in boilers heated by steam, and evaporated until it is ready to crystallize. When the syrup is concentrated to this point, it is poured into moulds of the well-known conical or sugar-loaf shape, upon the inside of which the sugar soon deposits itself, and when the syrup which floats on the solid deposit is removed, constitutes *loaf sugar*.

At this stage of the process the loaves of sugar are strongly coloured in consequence of the existence among the crystals of a quantity of brown syrup, amid which the crystallization is accomplished. To remove the colour, the crystals are submitted to two operations, the physical mechanism of which is extremely curious to know. The first consists in pouring upon the loaf of sugar, placed bottom upwards, a quantity of perfectly white syrup formed of pure sugar, and in such a state of concentration that it can dissolve no more sugar, but exercises its solvent action exclusively upon the foreign matters which colour the sugar-loaves. Poured upon the bottom of the loaf the white syrup descends and flows out at the point, leaving the loaf in a great measure free from colour. The second operation, analogous to the first in principle, consists in making pass through the sugary mass some pure water intended to remove the last colouring substances which have resisted the action of the syrup. To this end a layer of moist clay is applied

to the bottom of the sugar loaf; the water with which the clay is impregnated is soon absorbed by the loaf of sugar; it passes through the whole mass from top to bottom, driving before it the last impurities which colour the sugar, and finally leaves the loaf in that admirable state of whiteness and purity which every one admires. This is certainly one of the most curious processes in the arts.

In many parts of Canada and the United States of America the population rely upon the maple tree for their sugar.

The tree from which the sugar is obtained is known as the sugar maple (*acer saccharinum*); it is a large tree, and yields abundance of sap charged with crystallizable sugar. To obtain it a hole is made in the trunk of a tree, passing through the solid wood until it reaches the sap, which flows out drop by drop from the wound. The liquid is boiled and evaporated without any chemical treatment. As the sap of the maple contains nothing but sugar and water if the evaporation is quickly performed, the sugar undergoes but little change, and upon the cooling of the liquor a crystalline mass is obtained, which, over a large portion of the territory of North America, is sold in the markets to the exclusion of sugar from any other source.



INTERIOR OF MILL.

BOW WOW.

(*Concluded from page* 313.)

WHEN quite a pup, hardly half-grown, he played a trick unaccountable to me at this day as it was then. Sam had the run of the house, and he availed himself of it. On going into the breakfast-room, one morning early, I observed a singular phenomenon in connection with a large cold round of beef, which was the *pièce de résistance* on the table. It was curious to behold a round of cold beef with a tail, which it wagged and feathered, and beckoned with, as if to say, "Come, eat me." The tail was the tail of Sam, whose body was concealed far down in the interior of the tower of beef, into which he had cut his way with great perseverance and success. But the puzzle was, how he got there, for there was no chair within reach of the table, and he was much too small to have jumped upon it; while the theory of the servant, who propounded that he must have climbed up by the tablecloth, tooth over claw, was wild, and simply entitled to the contempt of any person aware of the difference between dog and cat. There is but one acceptable theory on the subject—that he was down in the caverns of the beef, tail and all, before it was brought up stairs, and so escaped notice.

Early in life, he contracted—from evil association, perhaps—a vulgar trick of running after carriages and barking at the horses' heels, a trick of which I in vain tried to break him. Once, when he was about a year old, I took him up beside me into a high calèche, in which we were going some distance. The moment the horse started, Sam jumped out to have a bark at his heels, when, to my horror, the wheel of the vehicle, in which there were three of us, went right over the middle of his body, cutting him apparently in two; but he was up in a second, and barking at heels and wheels for half a mile before we could pull up and get him in again. This accident appeared to decide him in the choice of a profession, for he devoted himself energetically, from that hour, to the pursuit and baying at all manner of wheeled things propelled by horse power.

A rat he would never touch, although I introduced him to one before he was a year old; he manifested neither fear of the vermin nor suprise at it, but simply took no interest in it. He had much pleasure in worrying cats; but that was owing, I fancy, to a sad discomfiture he once met with from one. Walking through a suburb one day, with Sammy trotting before me in dreamy mood, to which he was much given, a small but remarkably severe cat made a sudden and very fierce dash from a cottage door, taking him so completely aback, that he tumbled head over tail into a deep dirty pool of green stagnant water. His appearance, on emerging from that cesspool, was the reverse of majestic; but the incident gave him such an idea on the subject of cats, that he always persecuted them remorselessly from that day: nor did

he ever again walk through a suburb in any other frame of mind than a particularly wide-awake one, and with his tail up. These dogs are curiously sensitive about their dignity, and sometimes do not recover their elasticity of spirits for several days after having undergone a process of correction. I recollect a singular instance of this sensitiveness displayed by Sambo, in which he also manifested a kind of inferential power wonderfully akin to reason.

One morning a tumult of dogs in the street drew him to the window, out of which he looked by jumping on a chair, just as a troop of "curs of low degree" tore past after a rather genteel looking dog with a kettle tied to his tail. They whirled rapidly by in a turmoil of dust and clink, and cur-dog yelp, but not so rapidly as to prevent Sam from perceiving the terrible degradation to which a gentleman dog had been subjected. The sight had a visible effect on his spirits, for he immediately became quite depressed as to tail and mind, a condition which influenced him for a day or two, after which he again appeared comparatively cheerful, and took his place in society with his accustomed cautious conviviality. About a month after this, he was seen coming very slowly along a lane which led up to the back of the house, a course hardly ever taken by him, as he was a parlour-dog and considered himself entitled to the freedom of the hall door. Creeping on in the shadow of the wall, he arrived with a very crest-fallen aspect at the kitchen door, where the cause of his ignominious approach was made manifest to those who were watching him. *He had a kettle tied to his tail.* Now, this animal must surely have argued in his own mind, that running away with a tin kettle is a sure way of attracting undesirable notice; also, that proceeding through a public thoroughfare with such an appendage is injudicious, and likely to result in trouble. The circumstance of the runaway dog and the tumult after him had left its impression upon him; and travelling on his experience, he rightly judged that an unpleasant affair of the kind might best be hushed up by quietly making one's way home through back lanes and the kitchen door.

Skye terriers, when young, are apt to have a bad trick of gnawing and tearing up articles of wearing apparel, particularly slippers, and such other things as are handy to toss up and catch. The fellow I am writing about, when very young, destroyed sundry items of my property in that way. He occupied a buffalo robe in my room, and I heard him very busy one night about something, but did not pay much attention to it, as he was often lively at night. In the morning, however, on looking for a pair of leather gaiters, I recognised the remains of them, after much investigation, in a mass of pulp, to which they had been reduced by the little beast as completely as they could have been by the most experienced boa constrictor. This habit I soon broke him of, by chastising him with the remnants of the worried article, when there were any left of substance sufficient to weave into a scourge, nor did he recur to it when grown up, except once, evidencing upon that occasion a remarkable instance of hereditary instinct.

Some fur caps, and other articles of winter wear, had been taken out of

their summer quarters for the purpose of beating the moths out them and ventilating them generally, with a view to which they were placed upon the sill of an open window. By some means Sam obtained access to the room, where he was discovered in the act of mauling a valuable otter skin cap, which he had selected out of the whole collection for his particular amusement. This dog had never seen an otter; but his ancestors were noted for their game qualities in the pursuit of that animal, and their speciality must have descended to him.

Eventually Sambo lost all his self-respect. He became discontented and addicted to low company, dissipating with vile curs, whose owners enjoyed anything but unblemished reputations, a fact first notified to me by a clergyman of my acquaintance who knew him well. The worst of this was that he wore a collar with my name engraved upon it in full; and it was a long time before I had an opportunity of redeeming that misused badge. About the very last time I ever saw him, I think, he came home with one of his eyes gouged out, a split ear, and other marks but too suggestive of the tavern brawl. I then deprived him of his collar; soon after which he returned to his unsettled course of life, and I never saw him again.

The peculiar otter-like form of these animals, and the buoyancy given to them by their long floating hair, endow them with great facility for swimming, while the small compass into which they will pack in a boat or skiff make them very useful companions to the sportsman, whose propensities are for paddling about "in the melancholy marshes." I made an excellent retriever of one of mine by carrying in my pocket a stuffed snipe, which I would make her hunt up and fetch out of the weeds into which I had thrown it. She would go back half a mile and fetch this, when I had hidden it ever so cunningly in a thicket by the wayside. I also taught her to dive, by making her, while young, fetch up a little bag of shot from the bottom of a bath-tub in my room. By throwing this into deep water, gradually, she would soon go down to a great depth for it. A charge of shot, tied up in a piece of white kid glove, with a "neck" left to hold on by, is a good object for the purpose, as it is readily seen in deep water, and teaches the animal besides to nip gingerly—a valuable qualification in a retriever. I remember one of these dogs fetching up from a considerable depth the watch of a friend of mine, which had slipped out of his pocket into a clear still bay, over which he was loitering in his boat.

From times unrecorded until about twenty years ago, the Skye terrier awaited confidently his summons to the sphere of rank and fashion. About that time, the day which, as the proverb figuratively informs us, it falls to the lot of each individual of the canine race to enjoy, began to shine out brightly for the dog of Skye, the first rays of it that reached him being reflected from no less a luminary than the Crown of Great Britain; for it was among the Scottish fancies of England's Queen to adopt as a prime favourite this hitherto obscure quadruped. Reckoned until that time, if anybody took the trouble of computing him at all, as one of the ugliest of his

race, he at once found himself invested with all the attributes of a canine Adonis—a very admirable Crichton of dogs—perfect in intellect, face, figure, and the Hyperion luxuriance of his copious mane and tail. In our youth, we knew and hated a small unmitigated snob of a dog called the pug, a kind of work-basket bull-dog, diminutive in size, dyspeptic in temper, disagreeable to contemplate, and distressing to be obliged to admire. One of the missions in society of Skye terrier—who, when going before a high wind, bears no unapt resemblance to a mop or a wisp of tow—was to mop up pug, and polish him off the hearthrug of fashion; a mission which he appears to have at least partially accomplished. For now the black muzzle of pug is but seldom to be seen protruded from carriage-window, biding his time for a snap at the first kid-gloved finger that wags within range of his over-lapping tusks in waving salutation to his dowager mistress, for, of the dowagers, above all, he was one of the chronic calamities. Oftener, now, are the well combed whiskers and moustaches of Skye dog to be recognised dropping over the drawing-room window-sill, or framed, like a portrait by Landseer, in the panelled sash of the barouche, out of which he gazes pensively with the impressive speculation of the true *flâneur;* yea, for as men of fashion are, so are their dogs; and so also of the fighting butcher, who ever has his counterpart in the fighting bull-dog that glowers from his gory stall.

This exalted value of Skye dog, in a commercial point of view, has of course given rise to the manufacture of a spurious article; whence it comes, that, in ninety-nine cases out of a hundred, the animal palmed off on the unsophisticated as genuine has nothing of the real stuff in his constitution, but is simply a shallow imitation, compounded according to prescription—one part common cur-terrier to two parts insignificant French poodle. And so I take leave of the Skye terrier with a *caveat emptor* to the purchaser who does not want to be sold while he buys.

The sense of humour must surely exist in individual dogs; otherwise it would puzzle me to account for the singular practical jokes played off by a water-spaniel once possessed by me. This individual, whose name was Muff, was a rather small sized one, of the pure Kentish blood; liver coloured, with a white ring on his neck, and white paws; close curled, wicked eyed, deep chested, and remarkably powerful for his size. Professionally a retriever, and one of great promise, although never fully tested with the gun; his leisure hours, which included every one in the twenty-four, were passed in the invention and perpetration of curiously regulated mischief, with all of which he took pains to combine an element of the ludicrous. His great spree was to run amuck into a flock of small children coming out of school. If there was a dirty crossing hardby over which they had to pass, he would wait until they had got half way, and then, going through them like a rocket, would chuck them down into the mud, right and left, as he sped, keeping straight on in his career until far beyond range of pedagogue's rod. His trick of making a sudden rush at the heels of unsuspecting persons—and he invariably selected the right sort for his purpose—might often have got me into ugly scrapes

but for the tact with which he invariably ignored his master on such occasions. If pursued, he never came near me for protection, but fled wildly on, assuming the character of a dog "on the loose," belonging to nobody in particular, and quite able to take care of himself. He had a decided objection to street industrials in general, including Italian organ-grinders and image-sellers. Once I saw him crouching stealthily after one of the latter, who was passing through an open square with a tray of casts upon his head, and before I could get up a whistle, or call him off by name, he had darted like a javelin at the legs of the refugee, startling him so much out of the perpendicular that the superstructure of plastic art came to the ground with a crash, top-dressing the sterile soil of the Campus Martius with a coat of manufactured plaster of Paris; Marius, blubbering over the shattered chimney-stacks of Carthage, could not have displayed a more touching classical spectacle than did that modern Roman lamenting to and fro among the fragments of his collapsed martyrs and ruined saints; nor were his pangs fully assuaged even by the application of the universal panacea to an amount more than double the value of his lost wares.

A great difficulty in training this dog was to bring him "to heel"—a still greater one to keep him there when he came. If thrashed into his proper place in his master's wake, he always resented the indignity by biting him pretty severely in the legs with a savage whimper. This he invariably did on first leaving the house with me, sometimes nipping me so severely, after we had gone a short distance, that I have hesitated whether to go back for a pistol to shoot him, or forward for a pennyworth of biscuit to buy him off. When told to "hie away," the extravagance of his joy knew no bounds. He would have been as invaluable to a tailor as was to the Parisian *decrotteur* the poodle instructed by him to sully with his paws the shoes of the passengers; for, in the exuberance of his gladness, he but too often rent insufferably the vestments of the hapless pedestrian in his line of fire. Sometimes he would turn his assaults upon me, and, springing suddenly at my "wide-a-wake," take it from my head, trailing it wildly away through the mud, and dropping it in some place where it would be difficult to get at it without wading. Then I would have to conciliate him to fetch it—a favour not to be obtained without much stratagem and diplomacy.

One of this dog's abnormal qualities was the bull-dog one of holding on to his antagonist in a fight. But few dogs of his size were able to cope with him; and I once saw him, when in grip with a fierce bull terrier by a river-side, precipitate the result by dragging his adversary into the water, and dipping his head under. He would jump off the highest bridge to fetch out of the water anything thrown in for him, never failing to bring it to his master's feet, except once, when he steadily declined to recover from the raging element a cane with which I had, some time previously, administered to him a sound thrashing for some delinquency. On the first occasion of his being accidentally left behind at a ferry across a very wide and rapid river, he swam out some distance after the boat; but, finding the enterprise a rather

hopeless one, soon put back again and waited for the next boat, on board of which he took his place with a tranquil and business-like air. This he regularly did on subsequent occasions, without risking the swim; and when on board, he always seated himself on the upper deck and as far forward as possible, so as to catch early glimpses of his friends in waiting.

Among the gifts of this clever animal, I must not forget to reckon a perception of the truthful in Art. I had a walking-stick, upon the crooked handle of which was carved, with tolerable skill, a pointer's head. This piece of sculpture was a source of frequent anxiety to Muff, his embarrassment apparently arising from the circumstance of his not having the gift of speech wherewith to deliver himself of an opinion on the subject. He would sometimes get up from the sunny spot on the carpet where he lay, walk over to the corner in which the stick was deposited, contemplate the handle attentively, with his head on one side, for several minutes, and then, shaking his head doubtfully, return to his lair with a sigh. Philanthropist as well as critic, he once saved the life of a dissipated old sergeant of dragoons, to whom he had taken a fancy, by rushing into a house which the man had just quitted in a state of intoxication, and so rousing the inmates by his gestures, that they at once followed him into the road, alongside of which the beery old *sabreur* was found prostrate in a pool of water, setting his face pertinaciously against that hostile element, even to what was very near being his last gasp.

Large dogs often appear to take a humorous view of the futile attempts of small ones to accomplish some feat beyond their strength or stature. A friend of mine once possessed a very large animal of a cross between the Mount St. Bernard dog and the English mastiff, and as remarkable for his good nature as for his great strength and courage. Rambling out one day, acompanied by this trusty friend, they came upon a group of rustics engaged in the ignoble diversion of baiting a badger—an animal much in request among English dog-fanciers as a test for the pluck of their terriers. "Drawing a badger" is the proper sporting phrase, the animal being chained to a barrel, from the recesses of which he contends savagely with the fierce little dogs pitted against each other to drag him out within a given time. Nero looked on at the sport with a majestic air of contempt, as dog after dog was withdrawn from the conflict. At length, disgusted with the failures, he watched his opportunity until the badger made a dive from his den at a retreating foe, when, snapping him up by the collar, he thundered away down the road with the barrel flying after, nor ever stopped until he reached home, nearly a mile away, where he safely deposited badger and barrel in the immediate vicinity of his private residence in the stable-yard.

One of the worst vices by which a dog can be beset is a propensity for killing sheep. It is not a common vice, but, where it exists, it appears to be inveterate and beyond all hope of reform. Shutting up the delinquent with a dangerous ram has often been recommended as a certain mode of disgusting him with mutton, should he survive the discipline inflicted on him by the avenger of the blood of his race. I can recall but one instance within my

experience in which this corrective was tested. It was in the case of a sulky dog of a breed between the red Irish setter and something larger, but less patrician, upon whom the thirst for blood fell at uncertain intervals, impelling him then to devastate the very sheepfolds of which in his capacity as watch-dog he might have been considered as *ex-officio* the guardian. This vile malefactor had been ordered for execution, and the noose was already coiled for his caitiff neck, when a neighbour of his master's—a great raiser of sheep—begged for him a reprieve, kindly volunteering the use of a truculent but valuable ram belonging to him, for the purpose of illustrating the homœopathic theory above alluded to. At nightfall the ram was brought and turned into a paddock, where he was left fettered to the dog with a couple of yards of chain. At the dawn of morning the ram's master approached confidently the arena of discipline, secure of a result triumphant for his theory. But theory was a delusion in this instance; for the red dog Tanner sat there alone and surfeited with mutton, though there was a good deal of the ram still left.

It is wonderful what an amount of crime can be committed even by a small dog, when, like the *chourineur*, he is under the glamour of blood. Of this there came to my knowledge a well-authenticated instance, one for the truth of which I can vouch. A settler in a remote bush-district had been to the nearest village, which was many miles from his clearing. It was in March, and the surface of the snow (which was quite two feet deep) was frozen to a hard crust, as he travelled homewards in his cutter, accompanied by a currish dog, not nearly so large as an average pointer. About nightfall, and when some two miles from home, a herd of nine deer crossed his track, struggling away into the woods with uncertain plunges, as the treacherous crust gave way beneath them at every bound. While they were yet in sight, the dog gave chase, and they all disappeared into the dark forest together; nor did the dog return to the call of his master, who, after whistling to him for a short time, proceeded on his way and drove home without him. Early next morning the cur made his appearance, glutted and gory, and looking the very picture of dissipation. Struck by his appearance, they took the back track on his trail which led them to a hollow in the bush, where the snow was much trampled and draggled with blood, and in and around which every one of the nine deer lay dead, pulled down and throttled by one miserable cur, who had the mastery over them because he could run on the surface of the snow, through which they sunk. The dog's master—at whose shanty I once stayed when on a fishing excursion—was much mortified at the occurrence, as the deer hunting season was past, and he was one of nature's sportsmen, a gamekeeper by instinct.

I have but one more anecdote of a dog for the present; and that is one for the truth of which I distinctly decline to vouch. It was imparted to me by a caulker, who owned a woolly French poodle, which remarkable animal, he informed me, used to swim out regularly once a week—on Saturday evenings, I think he said—with a large wisp of tow in his mouth; upon the ascension of his fleas into which place of refuge, he would "let it slide" down the current

and swim back tranquilly to the shore, there to slumber away another week in comparative comfort.

Having thus calked my dog-talk—bark, in fact—with this very tough bit of yarn, I now relieve the reader of further demands upon his attention, for the present at least.

YOUTH.

THE ancient statue of Minerva, in the Villa Albani, was characterized as the Goddess of Wisdom by an aged countenance. Phidias reformed this idea, and gave to her beauty and youth. Previous artists had imitated Nature too carelessly—not deeply perceiving that wisdom and virtue, striving in man to resist senescence and decay, must in a goddess accomplish their purpose, and preserve her in perpetual bloom. Yet even decay and disease are often ineffectual; the young soul gleams through these impediments, and would be poorly expressed in figures of age. Accepting, therefore, this ideal representation, age and wisdom can never be companions; youth is wise, and age is imbecile.

Our childhood grows in value as we grow in years. It is to that time that everyone refers the influence which reaches to his present, and somehow moulds it. It may have been an insignificant circumstance—a word, a book, praise or reproof: but from it has flowed all that he is. We should seem ridiculous in men's eyes, were we known to give that importance to certain trifles, which in our private and inmost thought they really have. Each finds somewhat in his childhood peculiar and remarkable, on which he loves to dwell. It gives him a secret importance in his own eyes, and he bears it about with him as a kind of inspiring genius. Intimations of his destiny, gathered from early memories, float dimly before him, and are ever beckoning him on. That which he really is no one knows save himself. His words and actions do but inadequately reveal the being he is. We are all greater than we seem to each other. The heart's deepest secrets will not be told. The secret of the interest and delight we take in romances and poetry, is that they realize the expectations and hopes of youth. It is the world we had painted and expected. He is unhappy who has never known the eagerness of childish anticipation.

Full of anticipation, full of simple, sweet delights, are these years, the most valuable of lifetime. Then wisdom and religion are intuitive. But the child hastens to leave its beautiful time and state, and watches its own growth with impatient eye. Soon he will seek to return. The expectation of the future has been disappointed. Manhood is not that free, powerful, and commanding state the imagination had delineated. And the world too disappoints his hope. He finds things which none of his teachers ever hinted to him. He beholds a universal system of compromise and conformity, and in a fatal day

he learns to compromise and conform. At eighteen the youth requires much stricter truth of men than at twenty-four.

At twenty-four the prophecies of childhood and boyhood begin to be fulfilled, the longings of the heart to be satisfied. He finds and tastes that life which once seemed to him so full of satisfaction and advantage. The inclination to speak in the first person passes away, and his composition is less autobiographical. The claims of society and friends begin to be respected. Solitude and musing are less sweet. The morbid effusions of earlier years, once so precious, no longer please. Now he regards most his unwritten thought. He uses fewer adjectives and alliterations, more verbs and dogmatism. There was a time when his genius was not domesticated, and he did his work somewhat awkwardly, yet with a fervour prophetic of settled wisdom and eloquence. The youth is almost too much in earnest. He aims at nothing less than all knowledge, all wisdom, all power. Perchance the end of all this is that he may discover his own proper work and tendency, and learn to know himself from the revelations of his own nature in universal nature.

For it is by this sign we choose companions and books. Not that they are the best persons or the best thoughts; but some subtile affinity attracts and invites us to another self. In the choosing of companions there seems to be no choice at all. We meet, we know not how or when; and though we should remember the history, yet friendship has an anterior history we know not of. We all have friends, but the one want of the soul is a friend—that other self, that one without whom man is incomplete and but the opaque face of a planet. For such we patiently wait and hope, knowing that when we become worthy of him, continents, nor caste, nor opinion can separate us.

A like experience is known to the young man in his reading. 'Tis in vain to advise as to reading; a higher power controls the matter. Of course, there are some books all must read, as every one learns the alphabet and spelling-book; but his use and combination of them he shall share with no one. Some spiritual power is ever drawing us towards what we love. Thus in books, one constantly meets his own idea, his own feelings, even his most private ones, which he thought could not be known or appreciated beyond his own bosom. Therefore he quickly falls in love with those books that discover him to himself, and that are the keepers of his secrets. Here is a part of himself written out in immortal letters. Here is that thought long dimly haunting the mind, but which never before found adequate expression. Here is a memorable passage transcribed out of his experience.

The fascination of books consists in their revelations of the half-conscious images of the reader's mind. There is a wonderful likeness and coincidence in the thoughts of men. But not alone in books does one meet his own image at every turn. He beholds himself strewn in a thousand fragments throughout all the world, and his culture is nothing but assimilations of himself to them, until he can say with wise Ulysses,—

"I am a part of all that I have met."

Thus Nature compels the youth to seek every means of stimulating himself to activity. He has learned that in periods of transition and change fresh life flows in upon him, dilating the heart and disclosing new realms of thought. He thanks the gods for every mood, doric or dithyrambic, for each new relation, for each new friend, and even for his sorrows and misfortunes. Out of the past comes the complete wisdom which shall make old age, but another more fair and perfect youth. Even the face and form shall be fortified against time and fate. In the physiognomy of age much personal history is revealed. The dimples and folds of infancy have become the furrows of thought and care. Yet, sometimes retaining their original beauty, they are an ornament, and in them we read the record of deep thought and experience. But the wrinkles of some old people are characterless; running in all directions, appearing as though a finely woven cloth had left its impress upon the face, revealing a life aimless and idle, or distracted by a thousand cross-purposes and weaknesses.

If, now, youth will permit us to look a little deeper into his heart, we will attempt to celebrate that unpublished and vestal wisdom written there. Age does us only indirect justice, by the value it gives to memory; it slights and forgets its own present. This day with its trivialities dwindles and vanishes before the teeming hours wherein it learned and felt and suffered. So the circles, which are the trees' memories of its own growth, are more distinct towards near the centre, where its growth began, than in the outer and later development. Give age the past, and let us be content with our legacy, which is the future. Still shall youth cast one retrospective glance at the experience of its nonage, ere it assumes its prerogative, and quite forgets it.

When the first surprise at the discovery of the faculties is over, begins the era of experience. The aspiration conducting to experiment has revealed the power or the inability. Henceforth, the youth will know his relations to the world. But as yet men are ignorant how it stands between them. There has been only a closet performance, a morning rehearsal. He sees the tribute to genius, to industry, to birth, to fortune. At first he yields reluctantly to novitiate and culture; he yearns for action. His masters tell him that the world is coy, must be approached cautiously, and with something substantial in the hand. The old bird will not be caught with chaff. He does not yet understand the processes of accumulation and transmutation. The fate of the Danaides is his, and he draws long with a bottomless bucket. But at last his incompetency can no further be concealed. Then he either submits to the suggestions of despair and oblivion, or bravely begins his work. The exhilaration and satisfaction which he felt at his first performances, in this hour of renunciation, are changed to bitterness and disgust. He remembers the old oracle: "In the Bacchic procession many carry the thyrsus, but few are inspired." The possibility of ultimate failure threatens him more and more while he reflects; as the chasm which you wish to leap grows impassable, if you measure and deliberate. But the vivacity of youth preserves him from any permanent misanthropy or doubt. Nature makes us blind where we should

be injured by seeing. We partake of the lead of Saturn, the activity of fire, the forgetfulness of water. His academic praises console him, maugre his depreciation of them. His little fame, the homage of his little world, have in them the same sweetness as the reverberation of ages. Heaven would show him his capacity for those things to which he aspires by giving him an early representative realization of them. It is a happy confidence. Reality is tyrannous. Let him construe everything in the poet's mood. He shall dream and the day will have more significance. Youth belongs to the muse.

How the old men envy us! They wisely preclude us from their world, since they know how it would bereave us of all that makes our state so full of freedom and delight, and, to them, so suggestive of the part—

> "I remember, when I think,
> That my youth was half divine."

Thus the great have ever chosen young men for companions.

Was it not Plato who wished he were the heavens, that he might look down upon his young companions with a thousand eyes? Thus they do homage to the gift of youth, and, by its presence, contrive to nestle into its buoyant and pure existence. If youth will enjoy itself virtuously with gymnastics, with music, with friendship, with poetry, there will come no hours of lamentation and repentance. They attend the imbecile and thoughtless. These halcyon days will return to temper and grace the period of old age, as upon the ripened peach re-appear the hues of its early blossoms.

Among his seniors the youth perceives a certain jealously of him. They pretend that all has been said and done; they awe him with their great names. He has to learn that, though Jew and Greek have spoken, nevertheless he must reiterate and interpret to his own people and generation. Perchance, in the process, something new will likewise be added. Many things still wait an observer. Still is there infinite hope and expectation which youth must realize. In war, in peace, in politics, in books, all eyes are turned to behold the rising of his star.

Reluctantly does the youth yield to the claims of moderation and reserve. Abandonment to an object has hitherto been his highest wisdom. But in the pursuit of the most heroic friendship or the most sovereign passion the youth discovers that a certain continence is necessary. He cannot approach too closely; for that moment love is changed into disgust and hate. He would drink the nectar to the lees. This is one of Nature's limitations, and has many analogies; and he who would never see the bottom of any cup, and always be possessed with a divine hunger, must observe them. I remember how it piqued my childish curiosity that the moon seemed always to retreat when I ran towards her, and to pursue me when I fled. It was a very significant symbol. Stand a little apart, and things, of their own accord, will come more than half way. Nobody ever goes to meet a vagabond. Self-centered, domesticated persons attract. What would be the value of the heavens if we could bring the stars into our lap? They cannot be approached

or appropriated. Upon the highest mountain the horizon sinks you in a valley, and far aloft, in night and mystery, gleam the retreating stars.

It must be remembered that indirect vision is much more delicate than direct. Looking askance, with a certain oblique and upward glance, constitutes the art and power of the poet; for so a gentle invitation is offered the imagination to contribute its aid. We see clearest when the eye is elongated and slightly curtained. Persons with round, protuberant eyes are obliged to reduce their superfluous visual power by artificial means. We subordinate the external organ in order to liberate the inner eye of the mind. The musing pensive Hindoos, who have elongated eyes, look through the surface of things to their essence, and call the world illusion—the illusory energy of Vishnu.

There is a vulgar trick of wishing to touch everything. But the greatest caution is necessary in beholding a statue or painting, not to draw too near; and it is thus with every beautiful thing. Nature secretly writes, *hands off!*—and men do but translate her hieroglyph in their galleries and museums. The sense of touch is only a provision against the loss of sight and hearing. We should cultivate these, until, like the Scandinavian Heimdal, we can hear the trees and flowers grow, and see with Heraclitus the breathing of the stars.

The youth once loved Nature after this somewhat gross and material fashion, for the berries she gave him, the flowers she wove in his hair, and the brooks that drove his mimic mills. He chased the butterfly, he climbed the trees, he would stand in the rain, paint his cheeks with berry juice, dabble in the mud, and nothing was secure from his prying fingers and curious eyes. He must touch and taste of everything, and know every secret. But it eluded him; and he lay down from his giddy chase, tired and unsatisfied, yet still anticipating that the morning would reveal all. Later he approaches men and things in a different mood. Experience has taught him so much. He begins to feel the use of the past. Memory renders many present advantages as nothing, and there is a rare and peculiar value to every reminiscence that connects him with the year from which he is so fast receding. The bower which his own hands wove from birch trees and interwove with green brakes, where at the noon-time he was wont to retreat from the hot schoolhouse, with the little maid of his choice, and beguile the hour so happily, suggests a spell and charm to preserve him in perpetual childhood

TOM'S POCKET MONEY, AND HOW HE MADE IT.

TO THE REV. DR. PRIMROSE.

DEAR SIR,

MY friend Tom Harding's birthday occurred on the 25th of last month, and he kindly invited me to spend the day with him, an invitation I was only too glad to accept; so I asked for a day's holiday, and got it. I should have sent you an account of how I spent that day, for publication in your March number of the BOYS' WONDER BOOK, but the event occurred too late to reach you in time, so I was compelled to defer it for the present number.

As you may suppose, Sir, I spent a very pleasant day with my ingenious friend Tom, and I think I could easily fill all the pages of a number of your magazine, were I to attempt to describe all I saw. Surprises await you at every turn, and everything excites your admiration. Everything seems to thrive and prosper in Tom's hands; but when I said to him, admiringly, "What a lucky fellow you are, Tom," he was quite indignant, and replied, "Luck? pooh, nonsense! nothing of the sort. You mean *wit*, that is, ingenuity and industry, and patience. Do you think luck built me that poultry-house, or that summer-house, or that pigeon-house; not a bit of it; it was all hard work with my own hands. I should not be proud of my *luck*, as you call it, but I am proud of my skill and industry."

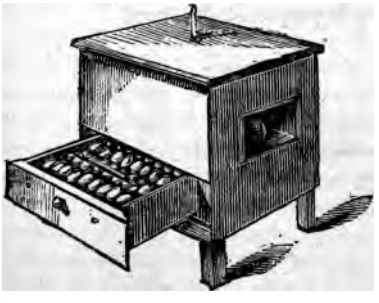
I soon discovered that friend Tom was prouder of his skill and industry, by which his possessions were acquired, than of the possessions themselves. He does not think so much of what he has got, as of what he has done to get it.

Stopping before a curious little structure, partly like a Chinese pagoda, and partly like a summer-house. Tom said to me with some warmth in his manner. "Look at that, now, look at it all over, inside and out, up and down, and tell me what you see *lucky* about it?"

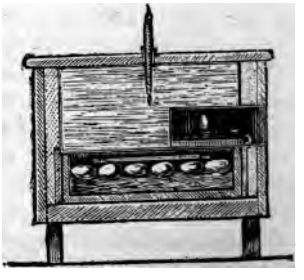
I felt rebuked, and made no reply for a few moments, at length, feeling that I ought to say something, I said—"I think its very pretty."

"Do you," he replied, "thank you, that's better than lucky."

"Pray what is it?" I inquired. "That's my INCUBATOR."



ARTIFICIAL INCUBATOR.



SECTION OF ARTIFICIAL INCUBATOR.

Well, Sir, that word was new to me, and as I had not got any dictionary in my pocket, I began blushing for my ignorance, when Tom, seeing my perplexity, smiled a pleasant smile, and said—

"My incubator, my egg-hatching apparatus, my bird factory, my artificial mother, my ——"

"Dear friend Tom," I exclaimed, "do stop, or I shall think that too much study has made you mad. Artificial mother! bird factory—why, what can you mean?"

"Yes, and fish factory too," said Tom, laughing at my wonderment. "If you were in your shell, goose, I could put you into my incubator, and hatch you too, and supply you with an artificial mother."

"I had rather be excused," I replied, "confine your experiments to birds and fish, if you please, they are more docile."

"But come," says Tom, "don't you want to see the inside: let us go in."

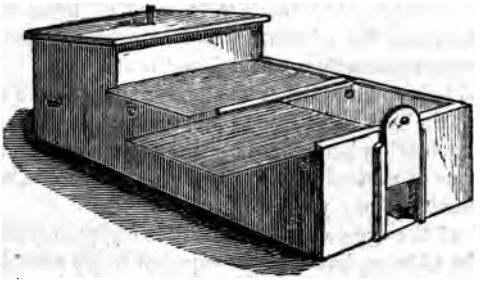
The building is hexagonal in shape, and is so constructed, that there is a sort of outer shell, within which the rooms are built, leaving a space or passage of about thirty inches wide all round; this arrangement was made with a view of protecting it against sudden variations in the external temperature.

When Tom opened the outer door I stepped into the vestibule, opening upon the interior passages, into which we walked, and made the tour of the interior, during which we passed six doors, on which were painted in black letters on a white ground—GEESE—DUCKS—HENS—PHEASANTS—TURKEYS—GUINEA HENS.

Upon Tom's opening the door of the room labelled HENS, I found myself in the most singular place I think I ever was in. It was quite warm, and on every side but one was occupied with open cages, in which innumerable young chicks were hopping and tumbling about, and picking up their food. But to my great astonishment there were no old hens.

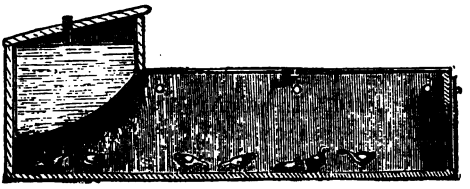
"Are all these little creatures orphans? Tom," I inquired. "Is your Orphan Asylum for young chickens?"

"Those cages are my artificial mothers," said Tom.



THE ARTIFICIAL MOTHER.

"Don't you see the contrivance to secure the chicks as much warmth as they may desire. In every cage in one corner you may see a lamb skin, with the wool on, hanging down and spread out two or three inches from the floor, rising to six inches. That lamb skin covers a zinc vessel, which is filled once a day with hot water; the heat of which penetrates to the lamb skin, and underneath the young chicks crowd for warmth as they would underneath the breast of the maternal hen.



SECTION OF ARTIFICIAL MOTHER.

"Wonderful! most wonderful: is that piece of work your own contrivance too. You who are so very ingenious?"

"Not quite. I made it myself, but I did not invent it. I'll tell you how it all came about."

"Pray, do, I'm all attention."

"On the wrapper of No. 2 of the "BOYS' WONDER BOOK" I saw an advertisement of an Egg Hatching Machine for sale. I immediately ordered it, and there it is, and it answers so well that I ordered five more, and now I have one in each of my six hatching rooms, which we will inspect each in its turn."

"I see nothing but a plain mahogany box about as big as my school box: pray, is there any machinery inside, any wheels, pistons, valves; is it worked by steam; does it ever blow up?" Tom gave a hearty laugh at my simple questions. When he had recovered his equanimity, he said—

"Oh no, no, no; it is as simple as a pump. I will show you of what it consists."

First, taking out a thermometer from a hole in the cover, and examining it. Tom exclaimed, "all right, 110, that's the figure," he lifted off the cover, and then I saw a zinc vessel full of warm water, into which I put my finger, and found the temperature something above blood heat.

We are obliged to keep the water at 110°, in order to secure the temperature of 104° or 105° to the eggs below, for that is the heat of the body of a setting hen, by which she hatches her eggs. In this incubator, the aim has been to copy the conditions of natural hatching as closely as possible, and that renders it the most successful of any yet invented.

"I have read of the egg-ovens of the ancient Egyptians, and of the hatching houses of the Chinese, but I never expected to see artificial hatching so near school."

"Perhaps not, Bob, but as the doctor says, 'we live in an age of wonder;' so be prepared for marvels."

Tom replaced the cover on the box, and restored the thermometer to the hole in the top. And upon my asking him how he kept the water hot, he took me to the end of the incubator, and in a little nook in the body of the apparatus, I saw a lamp burning, the heat of which kept the water at one regular heat as shown by the thermometer.

"This lot ought to be hatched to day," said Tom, carefully pulling out a drawer from beneath the bottom of the zinc boiler, as we may as well call it, although the water never boils in it. "Listen. I really think I hear the prisoners at work, trying to release themselves from their cells or shells, I suppose I ought to say."

We listened in breathless silence, and sure enough, I could hear a crack in the shell, and a sharp chirrup.

"Just look here," said Tom, pointing to the eggs in the drawer. I stooped down to examine the eggs, and about half way between the big and little end, was a nearly complete circular crack, and I could see the crack extending every minute, from the repeated blows given to it by the prisoner within.

"Hurrah," cried Tom, in high glee, "that fellow will make his way in the world, he will be the first out. Just wait a few minutes and you'll see what you'll see."

"*Omne animal ex ovo*, I said to myself. Some are oviparous, others are viviparous. I remember the lecture given by our worthy schoolmaster, on the changes that take place during the hatching of an egg.

"There he is!" cried Tom, clapping his hands, "look Bob, is he not a beauty."

I looked, but could not see much of a beauty. It was a very queer looking object, indeed, with its goggle eyes, and big head, which it turned first on one side and then on the other. I expected every moment to hear it say—"where's mother?" Tom took out the broken shell from whence this little stranger had escaped, and put the chick into another drawer filled with clean soft hay.

"He won't want anything from us till to-morrow, except warmth," said Tom. "He brings a day's provision with him in his pouch. To-morrow we give him some milk sops and hard boiled eggs. And after ten or twelve days, allow him to go abroad and see the world as it is in poultry yards."

"Wonderful are the works of Nature." I remarked, "we can build steam engines and balloons; but we cannot make an egg-shell."

"But we can hatch the eggs in the incubator, and that's a help, and a great labour-saving machine. How delighted the hens must be to get rid of that three weeks sit, sit, sitting, and the patient goose has a longer bout of it. Will she not rejoice in her heart, and will not her liver grow bigger in consequence, to the great delight of the epicures in *pâtés de foies gras*?"

"Everything is for the best," I replied.

"Come and see my partridge incubator," said Tom.

"I want to know one thing, Tom," I said. "Do incubators pay?"

"Stunning," replied Tom, "I can hatch fifty or sixty eggs at a cost of 1*d*.

a day for oil, which, for twenty-one days, comes to 1*s.* 9*d.* It would take three hens at 3*d.* a day to do the same work, amounting to 5*s.* 3*d.*"

"That's a saving, to begin with," I observed.

"Well, then, you can hatch all kinds of birds' eggs, especially game, in the incubator, and get good prices for the young birds."

"Do all that are hatched live, Tom?"

"That depends upon the quality and condition of the eggs. I lose a few young ones, but it is generally among those that are weak and puny when hatched. I do not think I lose more than natural mothers lose of their offspring, as they are exposed to more accidents. My artificial mothers are very careful nurses."

"Well, Tom, I must say I enjoy this my first introduction to incubators amazingly. I should like to see the operations carried on in the other hatching rooms."

"Oh certainly," said Tom, "We'll go and see the patridges."

And so we did, and it was delightful to see how active and busy the fledgings were fluttering about, picking up their provender. I went the round of all the hatching rooms, and marvelled at all I saw.

"Tom," I said, "you mentioned a fish travelling apparatus. I have not seen it."

"No, because it is down below in the cellar: fish do not require so warm a place to hatch their eggs in. Lift up that trap-door, and we will descend."

And down we went, but what I saw I must describe upon another occasion.

I remain, dear Sir, yours very respectfully,

"ROBERT."

YOUNG LIFE.

WHEN young Life begins his striving,
Treads the uphill way,
On towards fame is steady driving,
Working while 'tis day:

Let the young Life gird him stoutly,—
Brace his armour tight,—
And through trials he shall, breast high,
Walk through in his might.

When, his disappointment looming,
Glowers dark and drear,
Let him walk on through the gloaming,
Nor give way to fear.

Let him, fixing high his pole-star,
Walk erect and sure:
Nor, suff'ring in him what could mar,
Be in all things pure.

Let him not forget the weakly
On Life's hard-fought way;
But, his spirit bowing meekly,
Unto such give way.

Let him ne'er, in thickest battle,
Do his neighbour wrong;
Be above all idle tattle;
In uprightness strong,

Let him, in the Lord confiding,
Seek His guiding care;
Safe shall be while thus abiding;
None to harm shall dare.

SAUNDERS F. NICHOLLS.

SHIPWRECK AND CAPTIVITY OF CAPTAIN JOHN RILEY.

CHAPTER VIII.

THE AUTHOR AND HIS CREW ARE CARRIED ON CAMELS INTO THE INTERIOR OF THE DESERT OF ZAHAHRAH—THE ARABS HOLD A COUNCIL—THE CREW ARE SOLD AND DISTRIBUTED—THE AUTHOR'S REMARKABLE DREAM—THE SKIN AND FLESH ARE LITERALLY ROASTED OFF FROM HIS BODY, AND FROM THE BONES OF HIS COMPANIONS—THEIR DREADFUL SUFFERINGS WHILE NAKED AND WANDERING ABOUT THE DESERT WITH THEIR MASTERS, SUBSISTING ONLY ON A LITTLE CAMEL'S MILK —TWO ARAB TRADERS ARRIVE.

THE Arabs had been much amused in observing our difficulty in ascending the height, and kept up a laugh while they were shipping us forward. Their women and children were on foot as well as themselves, and went up without the slightest difficulty or inconvenience, though it was extremely hard for the camels to mount; and before they got to the top they were covered with sweat and foam.

Having selected five camels for the purpose, one for each of us, they put us on behind the humps, to which we were obliged to cling by grasping its long hair with both hands. The back-bone of the one I was set on was only covered with skin, and as sharp as the edge of an oar's blade; his belly distended with water, made him perfectly smooth, leaving no projection of the hips to keep me from sliding off behind, and his back or rump being as steep as the roof of a house, and so broad across as to keep my legs extended to their utmost stretch. I was in this manner slipping down to his tail every moment. I was forced however to keep on, while the camel, rendered extremely restive at the sight of his strange rider, was all the time running about among the drove, and making a most hideous bellowing; and as they have neither bridle, halter, or any other thing whereby to guide or govern them, all I had to do was to stick on as well as I could.

The Arabs, both men and women, were very anxious to know where we had been cast on shore, whether to the westward or eastward; and being satisfied by me on that point, as soon as they had placed us on the camels, and given the women directions how to steer, they mounted each his camel, seated themselves on the small round saddle, and then crossing their legs on the animals' shoulders, set off to the westward at a fast trot, leaving us under the care of the women, some of whom were on foot, and urged the camels forward as fast as they could run.

The heavy motions of the camel, not unlike that of a small vessel in a heavy head-beat sea, were so violent, aided by the sharp back-bone, as soon to excoriate certain parts of my naked body; the inside of my thighs and legs were also dreadfully chafed, so that the blood dripped from my heels, while the intense heat of the sun had scorched and blistered our bodies and the

outside of our legs, so that we were covered with sores, and without anything to administer relief.

Thus bleeding and smarting under the most excruciating pain, we continued to advance in a S.E. direction on a plain flat hard surface of sand, gravel, and rock, covered with small sharp stones. It seemed as if our bones would be dislocated at every step. Hungry and thirsty, the night came on, and no indication of stopping ; the cold night wind began to blow, chilling our blood, which ceased to trickle down our lacerated legs ; but, although it saved our blood, yet acting on our blistered skins, it increased our pains beyond description. We begged to be permitted to get off, but the women paid no attention to our distress nor entreaties, intent only on getting forward. We designedly slipped off the camels, when going at a full trot, risking to break our necks by the fall, and tried to excite their compassion and get a drink of water, (which they called *sherub*,) but they paid no attention to our prayers, and kept the camels running faster than before.

This was the first time I had attempted to walk bare-footed since I was a schoolboy : we were obliged to keep up with the camels, running over the stones, which were nearly as sharp as gun-flints, and cutting our feet to the bone at every step. It was here that my fortitude and philosophy failed to support me ; I cursed my fate aloud, and wished I had rushed into the sea before I gave myself up to these merciless beings in human forms. It was now too late. I would have put an immediate end to my existence, but had neither knife nor any other weapon with which to perform the deed. I searched for a stone, intending, if I could find a loose one sufficiently large, to knock out my own brains with it, but searched in vain. This paroxysm passed off in a minute or two, when reason returned, and I recollected that my life was in the hand of the Power that gave it, and that "the Judge of all the earth would do right." Then running with all my remaining might, I soon came up with the camels, regardless of my feet and of pain, and felt perfectly resigned and willing to submit to the will of Providence, and the fate that awaited me.

From that time forward, through all my succeeding trials and sufferings, I never once murmured in my heart, but at all times kept my spirits up, doing the utmost to obey and please those whom fortune, fate, or an overruling Providence had placed over me, and to persuade, both by precept and practice, my unhappy comrades to do the same.

I had, with my companions, cried aloud with pain, and begged our savage drivers for mercy, and when we had ceased to make a noise, fearing, as it were, to lose us in the dark, they stopped the camels, and again placing us on them as before, drove them on at full speed until about midnight, when we entered a small dell or valley excavated by the hand of nature, a little below the surface of the desert, about from fifteen to twenty feet deep. Here they stopped the camels, and made them lie down, bidding us to do the same. I judge we must have travelled forty miles this day to the S.E. ; the place was hard and rocky, not even sand to lie on, nor any covering to shelter us or keep off the cold damp wind that blew strong from the sea.

They soon set about milking, and then gave us each about a pint of pure milk, warm from the camels, taking great care to divide it for us; it warmed our stomachs, quenched our thirst in some measure, and allayed in a small degree the cravings of hunger.

Mr. Savage had been separated from us, and I learned from him afterwards that he fared better than we did, having had a larger allowance of milk. Clark, Horace, and Dick the cook, were still with me. We lay down on the ground as close to each other as we could, on the sharp stones, without any lee to fend off the wind from us; our bodies blistered all over and mangled, the stones piercing through the sore naked flesh to the ribs and other bones. These distresses, and our sad and desponding reflections, rendered this one of the longest and most dismal nights ever passed by any human beings. We kept shifting berths, striving to keep off some of the cold during the night, while sleep, that had hitherto relieved our distresses and fatigues, fled from us, in spite of all our efforts and solicitude to embrace it; nor were we able to close our eyes.

The morning of the 11th came on at last, and our industrious mistresses, having milked a little from the camels, and allowed the young ones to suck, gave us about half a pint of milk among four of us, being just enough to wet our mouths, and then made us go forward on foot and drive the camels. The condition of our feet was horrible beyond description, and the very recollection of it, even at this moment, make my nerves thrill and quiver.

We proceeded onward, having gained the level desert, for a considerable time, when upon entering a small valley, we discovered three or four tents made of coarse cloth, near which we were met by our masters and a number of men, whom we had not before seen, all armed with either a double barrelled musket, a scimitar, or dagger. They were all of the same nation and tribe, for they shook hands at meeting, and seemed very friendly to each other, though they stopped and examined us, as if disposed to question the right of property.

It now appeared there was still some difficulty in deciding to whom each one of us belonged; for seizing hold of us, some dragged one way and some another, disputing very loudly, and frequently drawing their weapons. It was, however, decided at last, after making us go different ways for the space of two or three hours with different men, that myself and the cook should remain, for the present, in the hands of our first master. They gave Clark to another, and Horace to a third.

We had come near a couple of tents, and were certainly disgusting objects, being naked and almost skinless; this was sometime about noon, when three women came out, who had not before seen us, and having satisfied their curiosity by gazing at us, they expressed their disgust and contempt, by spitting at us as we went along, making their faces still more horrid, by every possible contortion of their frightful features; this we afterwards found to be their constant practice wherever we went, until after we got out of the desert.

Towards evening, a great number of the men having collected in a little valley, we were made to stop, and as our bodies were blistered and burnt to such a degree as to excite pity in the breast of some of the men, they took means to have a tent cleared out for us to sit under. They then allowed all those of our crew present to sit under it; but Porter and Burns had been separated from me shortly after our capture, and, as may well be supposed, we were glad to meet one another again, miserable as we all were.

A council was now held by the natives near the tent; they were about one hundred and fifty men, some very old, some middle aged, and some quite young. I soon found they were Muhammadans, and the proper names by which they frequently called each other were *Muhamed*, *Hamet*, *Seid*, *Sidenllah*, *Abdallah*, &c.; so that by these and the female names—*Fatima*, *Ezimah*, *Sarah*, &c.—I knew them to be Arabs or Moors.

The council were deliberating about us; and having talked the matter over a long time, seated on the ground, with their legs crossed under them, in circles of from ten to twenty each, they afterwards arose and came to us.

One of the old men then addressed me; he seemed to be very intelligent, and though he spoke a language which I was unacquainted with, yet he explained himself in such a plain and distinct manner, sounding every letter full like the Spaniards, that with the help of signs I was able to understand his meaning.

He wanted to know what country we belonged to; I told him we were English, and as I perceived the Spanish language was in sound more like that which they spoke than any other I know, I used the phrase *Inglesis*. This seemed to please him, and he said, *O Fransah! O Spaniah!* meaning "or Frenchmen or Spaniards;" I repeated, we were English. He next wanted to know which point of the horizon we came from, and I pointed to the north.

They had seen our boat, which they called *zooerga*, and wanted to know if we had come all the way in that boat. I told them no; and, making a kind of coast by heaping up sand, and forming the shape of a vessel, into which I stuck sticks for masts and bowsprit, &c., I gave him to understand that we had been in a large vessel, and wrecked on the coast by a strong wind; then by tearing down the masts and covering up the vessel's form with sand, I signified to him that she was totally lost.

Thirty or forty of the other Arabs were sitting around us, paying the strictest attention to every one of my words and gestures, and assisting the old man to comprehend me. He wished to know where we were going, and what cargo the vessel (which, I now found, they called *Sfenah*) had on board. I satisfied them the best way I could on this point, telling them that I had on board, amongst other things, dollars. They wanted to know how many, and gave me a bowl to imitate the measure of them; this I did by filling it with stones and emptying it three times. They were much surprised at the quantity and seemed to be dissatisfied that they had not got a share of them.

They then wanted to know which way the vessel lay from us, and if we had

seen any of the natives, whom they called Muslemin. This I took to be what we call Mussulmen, or followers of the Muhammadan doctrine; and in this I was not mistaken. I then explained to them in what manner we had been treated by the inhabitants: that they had got all our clothing, except what we had on when they found us; all our money and provisions; massacred one of our number, and drove us out to sea. They told me that they heard of the shipwreck of a vessel a great way north, and of the money, &c., but that the crew were drowned in the *el M Bahar*; this was so near the Spanish, *La Mar*, for the sea, that I could not misunderstand it.

Thus having obtained what information they wanted on those points, they next desired to know if I knew anything about *Marocksh*, this sounded something like Morocco; I answered yes: next of the *sooltan*, (the sultan,) to which instead of saying "Yes," I made signs of assent, for I found they did no more themselves, except by a cluck with the tongue.

They wanted me to tell his name, *Soo Mook*, but I could not understand them until they mentioned *Muley Solimaan;* this I remembered to be the name of the present Emperor of Morocco, as pronounced in Spanish, nearly. I gave them to understand that I knew him; had seen him with my eyes, and that he was a friend to me and to my nation. They next made me point out the direction towards his dominions, and having satisfied them that I knew which way his dominions lay from us, I tried to intimate to them, that if they would carry me there, I should be able to pay them for my ransom and that of my crew.

They shook their heads; it was a great distance, and nothing for camels to eat or drink on the way.

My shipmates, who were with me, could not understand one syllable of what they said, or of their signs, and did not believe that I was able to communicate at all with them. Having finished their council, and talked the matter over amongst themselves, they separated, and our masters, taking each his slave, made off, every one his own way.

Although from the conference, I derived hopes of our getting ransomed, and imparted the same to my mates and crew, yet they all seemed to think I was deluding them with false expectations; nor could I convince them of the contrary. We took another leave of each other, when we parted for the night, having travelled this day, I should guess, about fifteen miles S.E.

I had been so fully occupied since noon, that no thoughts of victuals or drink had occurred to my mind; we had none of us eaten or drank anything this day, except about half a gill of milk each in the morning at daylight, and about half a pint of black beach water near the middle of the day. I was delivered over to an Arab named *Bickri*, and went with him near his tent, where he made me lie down on the ground like a camel.

Near midnight he brought me a bowl containing about a quart of milk and water; its taste was delicious, and as my stomach had become contracted by long hunger and thirst, I considered it quite a plentiful draught. I had been shivering with cold for a long time, as I had no covering or screen, and not

even one of my shipmates to lie near me to keep one side warm at a time. I was so far exhausted by fatigues, privations, &c., that my misery could no longer keep me awake. I sank into a deep sleep, and during this sleep I was troubled in the first place with the most frightful dreams.

I thought I was naked and a slave, and dreamed over the principal incidents which had already actually occurred. I then thought I was driven by Arabs with red-hot iron spears pointed at me on every side, through the most dreadful fire I had ever imagined for near a mile, naked and barefoot; the flames up to my eyes, scorched every part of my skin off, and wasted away my flesh by roasting, burning, and drying it off to the bones: my torments were inconceivable. I now thought I looked up towards heaven, and prayed to the Almighty to receive my spirit and end my sufferings; I was still in the midst of the flames; a bright spot like an eye, with rays around it, appeared above me in the firmament with a point below it reaching towards the N.E. I thought if I went that way I should go right, and turned from the south to the north-east. The fire soon subdued, and I went on, still urged by them about me, with their spears pricking me from time to time over high sand hills and rocky steps, my flesh dropping off in pieces as I went; then descending a deep valley, I thought I saw green trees, flowering shrubs in blossom, cows feeding on green grass, with horses, sheep, and asses near me, and as I moved on, I discovered a brook of clear running water; my thirst being excessive, I dragged my mangled limbs to the brook, threw myself down, and drank my fill of the most delicious water. When my thirst was quenched, I rolled in the brook to cool my body, which seemed still consuming with heat; then thanked my God in my heart for His mercies.

My master, in the meantime, kept hurrying me on in the way pointed out by the All-seeing eye, which was still visible in the heavens above my head, through crooked, thorny, and narrow paths, over high mountains and deep valleys; past hosts of armed men on horseback and on foot, and walled cities until we met a tall young man dressed in the European and American manner by the side of a brook, riding on a stately horse, who, upon seeing me, alighted, and rushing forward, wild with joy, caught me in his arms and pressed me to his breast, calling me by the endearing name of brother in my own language. I thought I fainted in his arms from excess of joy, and when I revived, found myself in a neat room, with a table set in the best manner before me covered with the choicest meats, fruits, and wines, and my deliverer pressing me to eat and drink; but finding me too much overcome to partake of this refreshment, he said, "Take courage, my dear friend, God has decreed that you shall again embrace your beloved wife and children." At this instant I was called by my master. I awoke, and found it was—a dream.

Being daylight (Sept. 12th), he ordered me to drive forward the camels. This I did for about an hour, but my feet were so much swelled, being lacerated by the cutting of the stones, which seemed as if they would penetrate to my heart at every step. I could not help stooping and crouching down nearly to the ground.

In this situation, my first master Hamet observed me; he was going on the same course, S.E., riding on his camel; he came near my present master, and after talking with him a good while, he took off the blanket from his back and gave it to Bickri, then coming close to me, made signs for me to stop. He next made his camel lie down, then fixing a piece of skin over his back behind the saddle, and making its two ends fast to the girths, to keep it from slipping off, he bade me mount on it, while he got on his saddle, and steadied me with his hand until the camel arose. He then went on the same course as before, in company with three or four other men, well armed and mounted.

The sun beat dreadfully hot upon my bare head and body, and it appeared to me that my head must soon split to pieces, as it was racking and cracking with excrutiating pain. Though in this horrible distress, yet I still thought of my dream of the last night, "a drowning man will catch at a straw," says the proverb, and I can verily add, that the very faintest gleam of hope will keep alive the declining spirits of a man in the deepest distress and misery; for from the moment I began to reflect on what had passed through my mind when sleeping, I felt convinced, that though this was nothing more than a dream, yet still remembering how narrowly and often I had escaped immediate apparent death, and believing it was through the peculiar interposition of Divine Providence, I could not but believe that the All-seeing eye was watching over my steps, and would in due time conduct me by His wisdom, into paths that would lead to my deliverance, and restoration to my family.

I was never superstitious, nor ever did I believe in dreams or visions, as they are termed, or even remembered them, so as to relate any I may have had; but this dream made such an impression on my mind, that it was not possible for me to remove it from my memory, being now as fresh as at the moment I awoke after dreaming it, and I must add, that when I afterwards saw Mr. Willshire, I knew him to be same man I had seen in my sleep. He had a particular mark on his chin, wore a light coloured frock coat, had on a white hat, and rode the same horse. From that time I thought, if I could once get to the empire of Morocco, I should be sure to find a friend to relieve me and my companions, whose heart was already prepared for it by superior power.

My mind was thus employed until we came to a little valley where half a dozen tents were pitched: as soon as we saw them, Hamet made his camel kneel down, and me to dismount, he was met by several women and children, who seemed very glad to see him, and I soon found they were his relations He beckoned me to come towards his tent, for he lived there apparently with his mother, and brothers and sisters, but the women and girls would not suffer me to approach them, driving me off with sticks, and throwing stones at me; but Hamet brought me a little sour milk and water in a bowl, which refreshed me considerably.

It was about two o'clock in the day, and I was forced to remain broiling in the sun without either tree, shrub, or any other shade to shield me from its scorching rays until night, when Dick (the cook) came in with the camels,

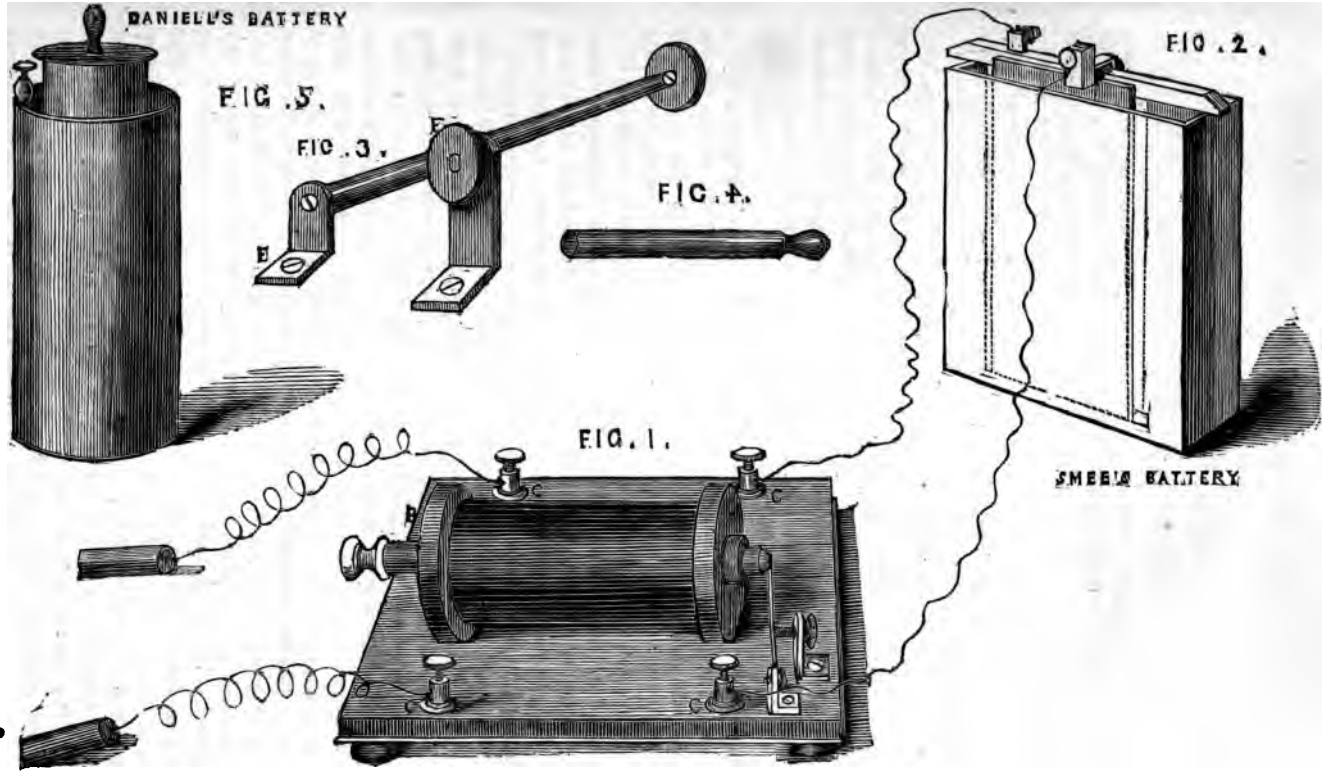
Hamet had kept Dick from the beginning, and made him drive the camels but allowed him to sleep in one corner of the tent, and gave him for the first few days as much milk as he could drink once a day; and as he was a domestic slave he managed to steal water, and sometimes sour milk when he was thirsty.

In the evening of this day I was joined by Hogan, and now found that he and myself had been purchased by Hamet that day, and that Horace belonged to an ill-looking old man, whose tent was pitched in company. This old villain came near me and saluted me by the name of *Rais*, asking me the name of his boy (Horace) I told him it was Horace, which, after repeating a few times, he learned so perfectly, that at every instant he was yelling out *Hoh Rais* for something or other.

Hamet was of a much lighter colour than the other Arabs we were with, and I thought he was less cruel, but in this respect I found I was mistaken, for he made myself and Hogan lie on the ground in a place he chose, where the stones were very thick, and baked into the ground so tight that we could not pull them out with our fingers, and we were forced to lie on their sharp points, though at a small distance, not more than fifty yards, was a spot of sand. This I made him understand (pointing at the same time to my skinless flesh), but he signified to us that if we did not remain where he had ordered, we should get no milk when he milked the camels. I calculate we travelled this day about thirty miles.

Here then we staid, but not to sleep, until about the midnight hour, when Hamet came to us with our milk. It was pure and warm from the camels; and about a pint for each. The wind blew as is usual in the night, and on that part of the desert the air was extremely cold and damp; but its moisture on our bodies was as salt as the ocean. Having received our share of milk, when all was still in the tent, we stole to the sandy place, where we got a little sleep during the remaining part of the night. Horace's master would not permit him to come near me, nor me to approach him, making use of a stick as well to enforce his commands in this particular, as to teach us to understand him in other respects.

(To be continued.)



THE GALVANIC COIL.



THE GALVANIC COIL,

HOW TO MAKE IT, AND WHAT TO DO WITH IT.

THIS well known instrument is made in various forms, both horizontal and perpendicular, but as the horizontal is most easily made, and most generally liked, I shall confine my description to that. At the present day it is in great request for various diseases, especially those of a nervous character, and also for rheumatism, &c., but the principal uses to which it is put by boys, are for giving shocks in frolic or mischief.

The coil is best set in action by a Smee's battery, charged with sulphuric acid, and water in the proportion of one part sulphuric acid to five or six parts of water, this solution is best kept in a strong stone or winebottle, as it requires safe keeping, being rather dangerous. When mixed, it evolves great heat, and therefore should be carefully mixed in an old jug, and poured into the bottle when nearly cold.

If a Smee's battery is not to be had then a Daniel's may be used, but it is far weaker.

The strongest battery is the platinum or carbon, and a very small one will set the coil in action. This battery is set in action by placing nitric acid in the porous pot, and dilute sulphuric acid in the outer jar, and is equal to about four of Smee's.

If two bowls of water are placed near the coil, and the wires inserted in the water, instead of the handles, the water becomes electrified, and by placing a finger or the hand in each bowl, you receive a shock; money may be placed in the bowl, and a person endeavouring to remove it will receive a shock.

The galvanic coil, or galvanic machine, is most correctly termed an induction coil, and is easily made by carrying strictly out the following instructions:— First, for the coil, "take a piece of cardboard, cartridge paper, or stiff brown paper, or a hollow cylinder of wood, if paper, &c., is used, cut it about 5½ inches wide, 18 inches long, roll it tightly round a tube of brass, iron, ruler, or any common stick, and glue it strongly, so that when dried it will slide off, and when off preserve the shape intended, viz., a hollow tube which will be about 5½ inches long, the ends of this must now be glued into two circular pieces of mahogany, rosewood, gutta percha, on any other substance, (see fig. 1, A & B) this s called the bobbin or reel, and on it the wire is to be carefully wound which constitutes the coil. Take half a pound of No. 16 cotton covered wire, and having made a hole in one end of the reel close to the paper or wooden tube, and pass one end of the wire through it, leaving out 4 or 6 inches, then carefully wind the remainder of the wire closely and evenly until the other end is reached, then return again to the end with which you commenced, back again, and so on, until the wire is all wound, and passing through another hole in the other end of the reel, like that we commenced with; when half a pound of wire is used we generally have thin layers, and these constitute the primary coil, or, as some people call it, the battery coil.

"If the wire be tightly wound, the reel is apt to bend in the tube, unless very strongly made, therefore, the best place is to place the reel on the ruler or stick on which it was made, which will prevent all chances of its bending.

"The primary coil is now to be covered with a layer of cardboard, and glued as before, and the coil is then ready for the thin or secondary wire.

"Take half a pound of No. 30 or 35 cotton covering copper wire, and pass one end through a hole made in the wooden end close to the cardboard, and the whole wound in precisely the same manner as the No. 16, or primary wire, passing also the remaining end of the fine wire through a similar hole in the other end of the wooden end of the reel. We have now, after having finished the winding, four ends of wire projecting, two at each end of the bobbin, one fine and one coarse at each end, and have now to determine on what sort of wood or stand, it shall be fixed or mounted; for this purpose a convenient size is about 6 inches broad, 8 inches long, either mahogany or rosewood, on this we place the bobbin, first cutting off a small piece of the rounded ends to make it lay flat and steady; then screw it firmly to the board by means of screws underneath, first making four holes in the board or base, through which the ends of the wire are to be passed. The reel should have from 1 to 2 inches clear at each end on the board. Now make four holes, one at each corner of the base board, and screw into them four brass terminal clamps, C C C C. It will now be as well to make the bundle of wire which is to fill up the hollow of the tube, and is called the core; for this purpose procure half a pound of fine iron wire, which is easily procured, already cut up and straightened; it must be firmly and neatly bound together and fastened at ach end with strong silk, string, or ribbon, and when finished appears like fig. 2: this is to be passed into the hollow tube and allowed to project a little at each end. "The next and most important part of the coil is the contact breaker (fig. 3) which is made of brass, 2½-inches long and about one-sixteenth of an inch or less in thickness, which forms a light spring, to one end of which is screwed or rivetted a button or flat pin of round iron (D) ¼-inch thick, ¼-inch diameter, the other end being screwed, as shown in the cut, to the upper part of E (fig. 3), which is a strip of thick brass, ⅜ or ½-inch wide, bent so as to form a short upright ½-inch high, having a foot ½-inch long, with a hole in it, as represented, for a screw to fasten it to the base board, and another smaller hole, in which is soldered a copper wire the same size as the primary wire, this also passing through the board. Fig. 4 is another upright of brass, the same thickness as the last, the foot being made precisely in the same way as the other, and the wire also passing through the board. This figure is 1-inch high, and has a screw (F) passing through near the top, and having a piece of platinum wire soldered into its point. The screw should have a milled head, and work rather tightly in the screw-hole, or it will, when in action, become unscrewed and cease working. It is as well to split the top of the figure 4, which prevents this taking place. A piece of flat platinum is to be soldered on the spring (fig. 3,) exactly opposite where the point of the platinum in figure 4 will touch when fastened on the base board."

Now, we must proceed to arrange the vibrating spring, contact breaker, &c.

Screw the short upright (fig. 3) on the base board, in such a position that the iron button is exactly opposite one end of the bundle of iron wire, which is already placed in the tube of the coil, and so near to it that the spring can vibrate without touching the iron wires. The upright (fig. 4) is now to be also placed on the board, so that the platinum point of F exactly faces the flat piece of platinum foil on the spring, which completes the arrangement of the contact breaker. The coil is now nearly completed, and we must turn it over and carefully follow out the instructions, or the wires will not be properly connected, and then the coil cannot work.

As was before said, there will be four wires projecting through the base board, and we must proceed thus: Bend one of the thick, or No. 16, wires to the bottom of one of the terminal screws C C C C at the same end of the board as the contact breaker, and firmly solder it; bend the other thick wire to the short upright of the contact breaker, solder it, and then the wire from the tall upright must be soldered to the terminal at the same end of the board. The two ends of the fine, or No. 30, wires are now to be soldered to the remaining brass terminals, and cannot fail to work, when the battery is connected to it, if all the instructions have been carefully carried out. And the best battery for this purpose is a Smee's, or very small carbon or platinum (see figures Smee's and Carbon Battery).

All the surfaces of this coil must be kept perfectly clean, as, if oxodized or dusty, it will not act; and if the brass and copper plates are not scraped clean when soldered, the contact will not be properly made. Also, when at the bottom of the board the wires cross each other, place a piece of leather or card board between them. After all is finished, the board can be polished, and the reel covered with silk ribbon, velvet, leather, or gold paper, according to the taste of the maker.

This coil is one of the most simple made, but there are many others of a more complicated kind, especially the Rhumkorff, which is now so fashionable; but as it is very expensive and difficult to make, although a beautiful instrument, I must defer its construction for another time. If it be wished to make a means of adjusting the strength of the shock to the coil, we have only to procure a brass tube having a wooden handle firmly fastened in one end (fig. 5), and made to slide in the hollow tube of the reel, over the bundle of iron wire, which must be made a little smaller for that purpose, and securely fastened in the tube by tightly winding string around one end—that nearest the contact breaker, and glueing it well in. By this arrangement we can diminish or increase the strength of the shocks by simply pulling out the brass tube or pushing it in, the greatest strength being when the brass tube is entirely withdrawn, that is to say, drawn out as long as the bundle of wires or length of coil; the weakest when the tube is entirely in the coil. *

* Coils similar to those described above can be obtained of Mr. Faulkner, philosophical instrument maker, 40, Endell Street, Long Acre, W.C., for 15s., and also the contact breaker, complete, 3s. 6d.; brass tube and handle, 1s. 6d.; bundle of wire, 1s. 6d.; bobbin, 2s.; No. 16 cotton-covered wire, 3s. a pound; cotton cord, No. 30, 8s. to 10s. a pound; batteries, 5s. 6d. each; handles, 1s. 6d. a pair.

THE WONDER-SMITH.

A WEIRD STORY.

A WONDERFUL transformation had taken place. Wooden and inflexible no longer, the crowd of manikins were now in full motion. The bead-like eyes turned, glittering, on all sides; the thin wicked lips quivered with bad passions; the tiny hands sheathed and unsheathed the little swords and daggers. Episodes, common to life, ever taking place in every direction. Here two martial manikins paid court to a pretty sly-faced female, who smiled on each alternately, but gave her hand to be kissed to a third manikin, an ugly little scoundrel who crouched behind her back. There a pair of friendly dolls walked arm in arm, apparently on the best terms, while, all the time, one was watching his opportunity to stab the other in the back.

"I think they'll do," said the Wonder-smith, chuckling as he watched these various incidents. "Treacherous, cruel, bloodthirsty, all goes marvellously well. But stay! I will put the grand test to them!"

So saying, he drew a gold dollar from his pocket, and let it fall on the table in the very midst of the throng of manikins. It had hardly touched on the table, when there was a panic on all sides. Every head was turned towards the dollar. Then about twenty of the little creatures rushed towards the glittering coin. One, fleeter than the rest, leaped upon it, and drew his sword. The entire crowd of little people had now gathered round this new centre of attraction. Men and women struggled and shoved to get nearer to the piece of gold. Hardly had the first Liliputian mounted upon the treasure, when a hundred blades flashed back a defiant answer to his, and a dozen men, sword in hand, leaped upon the yellow platform, and drove him off at the sword's point. Then commenced a general battle. The miniature faces were convulsed with rage and avarice. Each furious doll tried to plunge dagger or sword into his or her neighbour, and the women seemed possessed by a thousand devils.

"They will break themselves into atoms," cried Filomel, as she watched with eagerness this savage mêlée. "You had better gather them up, Herr Hippe, I will exhaust my bottle and suck all the souls back from them."

"Oh, they are perfect devils! they are magnificent little demons!" cried the Frenchman, with enthusiam. "Hippe, you are a wonderful man. Brother Oaksmith, you have no such man as Hippe among your English Gipsies."

"Not exactly," answered Oaksmith, rather sullenly, "not exactly." But we have men there who can make a twelve-year old horse look like a four-year old, and who can take you and Herr Hippe up with one hand, and throw you over their shoulders."

"The good God forbid!" replied the little Frenchman. "I do not love such play. It is incommodious."

While Oaksmith and Kerplonne were talking, the Wonder-smith had

placed the linen tent over the struggling dolls, and Madame Filomel, who had been performing some mysterious manipulations with her black bottle, put the mouth once more to the door of the tent. In an instant the confused murmur within ceased. Madame Filomel corked the bottle quickly. The Wonder-smith withdrew the tent, and, lo! the furious dolls were once more wooden-jointed and inflexible: and the old sinister look was again frozen on their faces.

"They must have blood, though," said Herr Hippe, as he gathered them up and put them into their box. "Mr. Pippel, the bird-fancier, is asleep. I have a key that opens his door. We will let them loose among the birds; it will be rare fun."

"Magnificent!" cried Kerplonne. "Let us go on the instant. But first let me gather up my eye."

The Frenchman pocketed his eye, after having given it a polish with the silk handkerchief; Herr Hippe extinguished the lamp; Oaksmith took a last bumper of Port; and the four Gipsies departed for Mr. Pippel's; carrying the box of manikins with them.

CHAPTER III.

SOLON.

The shadow that glided along the dark corridor, at the moment that Monsieur Kerplonne deposited his sentinel eye outside the door of the Wonder-smith's apartment, sped swiftly through the passage and ascended the stairs to the attic. Here the shadow stopped, at the entrance to one of the chambers and knocked at the door. There was no reply.

"Zonéla, are you asleep?" said the shadow, softly.

"Oh, Solon, is it you?" replied a sweet low voice from within. "I thought it was Herr Hippe, come in."

The shadow opened the door and entered. There were neither candles nor lamp in the room; but through the projecting window, which was open, there came the faint gleams of the starlight, by which one could distinguish a female figure seated on a low stool in the middle of the floor.

"Has he left you without light again, Zonéla?" asked the shadow, closing the door of the apartment. "I have brought my little lantern with me, though."

"Thank you, Solon," answered she called Zonéla; "you are a good fellow He never gives me any light of an evening, but bids me go to bed. I like to sit sometimes and look at the moon and the stars, the stars more than all, for they seem all the time to look right back into my face, very sadly, as if they would say, 'We see you, and pity you, and would help you, if we could.' But it is so mournful to be always looking at such myriads of melancholy eyes! and I long so to read those nice books that you lend me, Solon!"

By this time the shadow had lit the lantern and was a shadow no longer. A large head covered with a profusion of long blonde hair, which was cut after that fashion known as *à l'enfants d'Edouard:* a beautiful pale face, lit with wide blue dreamy eyes; long arms and slender hands, attenuated legs, and an enormous hump; such was Solon; the shadow. As soon as the humpback had lit the lamp, Zonéla arose from the low stool on which she had been seated, and took Solon's hand affectionately in hers.

Zonéla was surely not of gipsy blood. That rich auburn hair, that looked almost black in the lamp-light, that pale transparent skin, tinged with an underglow of warm rich blood, the hazel eyes, large and soft as those of a fawn, were never begotten of a Zingaro. Zonéla was seemingly about sixteen; her figure, although somewhat thin and angular, was full of the unconscious grace of youth. She was dressed in an old cotton print, which had been once of an exceedingly boisterous pattern, but was now a mere suggestion of former splendour; while round her head was twisted in fantastic fashion a silk handkerchief of green ground spotted with bright crimson. This strange head-dress gave her an elfish appearance.

"I have been out all day with the organ, and I am so tired, Solon! not sleepy, but weary, I mean. Poor Furbelow was sleepy, though, and he's gone to bed."

"I'm weary, too, Zonéla; not weary as your are, though, for I sit in my little book-stall all day long, and do not drag round an organ and a monkey and play old tunes for pennies, but weary of myself, of life, of the load that I carry on my shoulders;" and, as he said this, the poor humpback glanced sideways, as if to call attention to his deformed person.

"Well, but you ought not to be melancholy amidst your books, Solon. Gracious! If I could only sit in the sun and read as you do, how happy I should be! But it's very tiresome to trudge round all day with that nasty organ, and look up at the houses, and know that you are annoying the people inside; and then the boys play such bad tricks on poor Furbelow, throwing him hot pennies to pick up, and burning his poor little hands; and oh! sometimes, Solon, the men in the street make me so afraid, they speak to me and look at me so oddly! I'd a great deal rather sit in your book-stall and read."

"I have nothing but odd volumes in my stall," answered the humpback. "Perhaps, that's right, for, after all, I'm but an odd volume myself."

"Come, don't be melancholy, Solon. Sit down and tell me a story. I'll bring Furbelow to listen."

So saying, she went to a dark corner of the cheerless attic-room, and returned with a little Brazilian monkey in her arms, a poor, mild, drowsy thing, that looked as if it had cried itself to sleep. She sat down on her little stool, with Furbelow in her lap, and nodded her head to Solon, as much as to say, 'Go on; we are attentive."

"You want a story, do you?" said the humpback, with a mournful smile. "Well, I'll tell you one. Only what will your father say if he catches me here?"

"Herr Hippe is not my father," cried Zonéla, indignantly. "He's a gipsy, and I know I'm stolen, and I'd run away from him if I only knew where to run to. If I were his child, do you think that he would treat me as he does? Make me trudge round the city all day long with a barrel-organ and a monkey, though I love poor dear little Furbelow, and keep me up in a garret, and give me ever so little to eat? I know I'm not his child, for he hates me."

"Listen to my story, Zonéla, and we'll talk of that afterwards. Let me sit at your feet;" and having coiled himself up at the little maiden's feet, he commenced:—

"There once lived in a great city just like this, a poor little hunchback. He kept a second-hand book-stall, where he made barely enough money to keep body and soul together. He was very sad at times, because he knew scarce any one, and those that he did know did not love him. He had passed a sickly secluded youth. The children of his neighbourhood would not play with him, for he was not made like them, and the people in the streets stared at him with pity, or scoffed at him when he went by. Ah! Zonéla, how this poor heart was wrung with bitterness when he beheld the procession of shapely men and fine women that every day passed him by in the thoroughfares of the great city! How he repined and cursed his fate as the torrent of firm-footed volunteers marched past him to the sound of music, magnificent in their overflowing vitality and strength! But there was one consolation left him—one drop of honey in the jar of gall so sweet that it ameliorated all the bitterness of life. God had given him a deformed body, but his mind was straight and healthy. So the poor hunchback shut himself into the world of books, and was, if not happy, at least contented. He kept company with courteous paladins, and romantic heroes, and beautiful women; and this society was of such excellent breeding that it never so much as once noticed his poor crooked back or his lamé walk. The love of books grew upon him with his years. He was remarked for his studious habits, and when one day the obscure people that he called father and mother—parents only in name—died, a compassionate book-vendor gave him enough stock in trade to set up a little stall of his own. Here, in his book-stall, he sat in the sun all day waiting for the customers that seldom came, and reading the fine deeds of the people of the ancient time, or the beautiful thoughts of the poets that had warmed millions of hearts before that hour, and still glowed for him with undiminished fire. One day, when he was reading some book, that, small as it was, was big enough to shut the whole world out from him, he heard some music in the street. Looking up from his book, he saw a little girl with large eyes playing an organ, while a monkey begged for alms from a crowd of idlers who had nothing in their pockets but their hands. The girl was playing, but she was also weeping. The merry notes of the polka were ground out to a silent accompaniment of tears. She looked very sad this organ-girl, and her monkey seemed to have caught the infection, for his large brown eyes were moist, as if he also wept. The poor hunchback was struck

with pity, and called the little girl over to give her a penny—not, dear Zonéla, because he wished to bestow alms, but because he wanted to speak with her. She came, and they talked together. She came the next day, for it turned out that they were neighbours; and the next, and, in short, every day. They became friends. They were both lonely and afflicted, with this difference, that she was beautiful, and he was a hunchback."

"Why, Solon," cried Zonéla, "that's the way you and I met!"

"It was then," continued Solon, with a faint smile, "that life seemed to have its music. A great harmony seemed to the poor cripple to fill the world. The carts that took the sugar casks from the wharves to the warehouses seemed to emit joyous melodies from their wheels. The hum of the great business-streets sounded like grand symphonies of triumph. As one who has been travelling through a barren country without heed feels with singular force the sterility of the lands he has passed through when he reaches the fertile plains that lie at the end of his journey, so the humpback, after his vision had been freshened with this blooming flower, remembered for the first time the misery of the life that he had led. But he did not allow himself to dwell upon the past. The present was so delightful that it occupied all his thoughts. Zonéla, he was in love with the organ girl."

"Oh, that's so nice!" said Zonéla, innocently—pinching poor Furbelow, as she spoke, in order to dispel a very evident snoose that was creeping over him. "It's going to be a love-story."

"Ah! but, Zonéla, he did not know whether she loved him in return. You forget that he was deformed."

"But," answered the girl, gravely, "he was good."

A light like the flash of an aurora illuminated Solon's face for an instant. He put out his hand suddenly, as if to take Zonéla's and press it to his heart; but an unaccountable timidity seemed to arrest the impulse, and he only stroked Furbelow's head,—upon which that individual opened one large brown eye to the extent of the eighth of an inch, and seeing that it was only Solon, instantly closed it again, and resumed his dream of a city where there were no organs and all the copper coin of the realm was iced.

"He hoped and feared," continued Solon, in a low, mournful voice; "but at times he was very miserable, because he did not think it possible that so much happiness was reserved for him as the love of this beautiful, innocent girl. At night, when he was in bed, and all the world was dreaming, he lay awake looking up at the old books that hung against the walls, thinking how he could bring about the charming of her heart. One night, when he was thinking of this, with his eyes fixed upon the mouldering backs of the odd volumes that lay on their shelves, and looked back at him wistfully, as if they would say,—'We also are like you, and wait to be completed.' It seemed as if he heard a rustle of leaves. Then, one by one, the books came down from their places to the floor, as if shifted by invisible hands, opened their worm-eaten covers, and from between the pages of each the hunchback saw issue forth a curious throng of little people that danced here and there through the

apartment. Each one of these little creatures was shaped so as to bear some resemblance to some one of the letters of the alphabet. One tall, long-legged fellow seemed like the letter A; a burly fellow, with a big head and a paunch, was the model of B; another leering little chap might have passed for a Q; and so on through the whole. These fairies, for fairies they were, climbed upon the hunchback's bed, and clustered thick as bees upon his pillow. 'Come?' they cried to him, 'we will lead you into fairy-land.' So saying, they seized his hand, and he suddenly found himself in a beautiful country, where the light did not come from sun or moon or star; but floated round and over and in everything like the atmosphere. On all sides he heard mysterious melodies sung by strangely musical voices. None of the features of the landscape were definite; yet when he looked on the vague harmonies of colour that makes one blend into another before his sight, he was filled with a sense of inexplicable beauty. On every side of him fluttered radiant bodies which darted to and fro through the illumined space. They were not birds, yet they flew like birds; and as each one crossed the path of his vision, he felt a strange delight flash through his brain, and straightway an interior voice seemed to sing beneath the vaulted dome of his temples a verse containing some beautiful thought. The little fairies were all this time dancing and fluttering around him, perching on his head or his shoulders, or balancing themselves on his finger-tips. "Where am I?" he asked, at last, of his friends the fairies. 'Ah! Solon,' he heard them whisper, in tones that sounded like the distant tinkling of silver bells, 'this land is nameless; but those whom we lead hither, who tread its soil, and breathe its air, and gaze on its floating sparks of light, are poets for evermore!' Having said this they vanished, and with them the beautiful indefinite land, and the flashing lights, and the illumined air; and the hunchback found himself again in bed, with the moonlight quivering on the floor, and the dusty books on their shelves, grim and mouldy as ever."

"You have betrayed yourself. You called yourself Solon," cried Zonéla. "Was it a dream?"

"I do not know," answered Solon; "but since that night I have been a poet."

"A poet?" screamed the little organ girl; "a real poet, who makes verses which every one reads and every one talks of?"

"The people call me a poet," answered Solon, with a sad smile. "They do not know me by the name of Solon, for I write under an assumed title: but they praise me, and repeat my songs; but Zonéla, I can't sing this load off my back, can I?"

"Oh, bother the hump!" said Zonéla, jumping up suddenly. "You're a poet, and that's enough, ain't it? I'm so glad you're a poet, Solon! You must repeat all your best things to me, won't you?"

Solon nodded assent.

"You don't ask me," he said, "who was the little girl that the hunchback loved."

Zonéla's face flushed crimson. She turned suddenly away, and ran into a dark corner of the room. In a moment she returned with an old hand-organ in her arms.

"Play, Solon, play!" she cried. "I am so glad that I want to dance; Furbelow, come and dance in honour of Solon the Poet."

It was her confession. Solon's eyes flamed as if his brain had suddenly ignited. He said nothing, but a triumphant smile broke over his countenance. Zonéla, the twilight of whose cheeks was still rosy with the setting blush, caught the lazy Furbelow by his little paws. Solon turned the crank of the organ, which wheezed out as merry a polka as its asthma would allow, and the girl and the monkey commenced their fantastic dance. They had taken but a few steps when the door suddenly opened, and the tall figure of the Wonder-smith appeared on the threshold. His face was convulsed with rage, and the black snake that quivered on his upper lip seemed to rear itself as if about to spring upon the hunchback.

CHAPTER IV.

THE MANIKINS AND THE MINOS.

THE four gipsies left Herr Hippe's house cautiously, and directed their steps towards Mr. Pippel's bird-shop. Golosh Street was asleep. Nothing was stirring in that tenebrious slum, save a dog that savagely gnawed a bone which lay on a dust heap, tantalizing him with the flavour of food without its substance. As the gipsies moved stealthily along in the darkness, thay had a sinister and murderous air that would not have failed to attract the attention of the policeman of the quarter, if that worthy had not at the moment been comfortably ensconced in the neighbouring "Rainbow" bar-room, listening to the improvisitations of that talented vocalist, Mr. Harrison, who was making impromptu verses on every possible subject, to the accompaniment of a cithern, which was played by a sad little Italian in a large cloak, to whom the host of the "Rainbow" gave so many toddies and a dollar for his nightly performance.

Mr. Pippel's shop was but a short distance from the Wonder-smith's house. A few moments, therefore, brought the gipsy party to the door, when, by aid of a key which Herr Hippe produced, they silently slipped into the entry. Here the Wonder-smith took a dark-lantern from under his cloak, removed the cap that shrouded the light, and led the way into the shop, which was separated from the entry only by a glass door, that yielded, like the outer one, to a key which Hippe took from his pocket. The four gipsies now entered the shop and closed the door behind them.

It was a little world of birds. On every side, whether in large or small cages, one beheld balls of various coloured feathers, standing on one leg, and breathing peacefully. Love-birds, nestling shoulder to shoulder, with their

heads tucked under their wings, and all their feathers puffed out, so that they looked like globes of malachite. English bullfinches, with ashen-coloured backs, in which their black heads were buried, and corslets of a rosy down; Java sparrows, fat and sleek and cleanly; troupials, so glossy and splendid in plumage that they looked as if they were dressed in the celebrated armour of the Black Prince, which was jet, richly damascened with gold; a cock of the rock gleaming a ball of tawny fire like a setting sun; the campanero of Brazil, white as snow, with his dilatable tolling-tube hanging from his head, placid and silent; these, with a humbler crowd of linnets, canaries, robins, mocking-birds, and phœbes, slumbered calmly in their little cages, that were hung so thickly on the wall as not to leave an inch of it visible.

"Splendid little morsels, all of them!" exclaimed Monsieur Kerplonne. "Ah, we are going to have a rare beating?"

"So Pippel does not sleep in his shop," said the English gipsy, Oaksmith,

"No, The fellow lives somewhere up one of the avenues," answered Madame Filomel. "He came the other evening to consult me about his fortune, I did not tell him," she added, with a laugh, "that he was going to have so distinguished a sporting party on his premises."

"Come," said the Wonder-smith, producing the box of manikins, "get ready with souls, Madame Filomel, I am impatient to see my little men letting out lives for the first time."

Just at the moment that the Wonder-smith uttered this sentence, the four gipsies were startled by a hoarse voice issuing from a corner of the room, and propounding in the most guttural tones the intemperate query of "What'll you take?" This sottish invitation had scarce been given, when a second extremely thick voice replied from an opposite corner, in accents so rough that they seemed to issue from a throat torn and furrowed by the liquid lava of many bar-rooms,—"Brandy and water."

"Hollo! who's here?" muttered Herr Hippe, flashing the light of his lantern round the shop.

Oaksmith turned up his coat cuffs, as if to be ready for a fight; Madame Filomel glided, or rather rolled towards the door; while Kerplonne put his hand into his pocket, as if to assure himself that his supernumerary optic was all right.

"What'll you take?" croaked the voice in the corner, once more.

"Brandy and water," rapidly replied the second voice in the other corner. And then as if by a concerted movement, a series of bibular invitations and acceptances were rolled backwards and forwards with a volubility of utterance that threw Patter *versus* Clatter into the shade.

"What the devil can it be?" muttered the Wonder-smith, flashing his lantern here and there. "Ah! it is those minos."

So saying, he stopped under one of the wicker cages that hung high up on the wall, and raised the lantern above his head, so as to throw the light upon that particular cage. The hospitable individual who had been extending all these hoarse invitations to partake of intoxicating beverages was an inhabitant

of the cage. It was a large mino-bird, who now stood perched on his cross-bar, with his yellowish orange bill sloped slightly over his shoulder, and his white eye cocked knowingly upon the Wonder-smith. The respondent voice in the other corner came from another mino bird, who sat in the dusk in a similar cage, also attentively watching the Wonder-smith. These mino birds, I may remark, in passing, have a singular aptitude for acquiring phrases.

"What'll you take?" repeated the mino, cocking his other eye upon Herr Hippe.

"*Mon Dieu*! what a bird!" exclaimed the little Frenchman. "He is, in truth, polite."

"I don't know what I'll take," said Hippe, as if replying to the mino bird; "but I know what you'll get, old fellow! Filomel, open the cage doors, and give me the bottle."

Filomel opened, one after the other, the doors of the numberless little cages, thereby arousing from slumber their feathered occupants, who opened their beaks, and stretched their claws, and stared with great surprise at the lantern and their midnight visitors.

By this time the Wonder-smith had performed the mysterious manipulation with the bottle, and the manikins were once more in full motion, swarming out of their box, sword and dagger in hand, with their little black eyes glittering fiercely, and their white teeth shining. The little creatures seemed to scent their prey. The gipsies stood in the centre of the shop, watching the proceedings eagerly, while the liliputians made in a body towards the wall, and commenced climbing from cage to cage. Then was heard a tremendous fluttering of wings, and faint despairing "quirks" echoed on all sides. In almost every cage there was a fierce manikin thrusting his sword or dagger vigorously into the body of some unhappy bird. It recalled the antique legends of the battles of the Pigmies and the Cranes. The poor love birds lay with their emerald feathers dabbled in their hearts blood, shoulder to shoulder in death as in life. Canaries gasped at the bottom of their cages, while the water in their little glass fountains ran red. The bullfinches wore an unnatural crimson on their breasts. The mocking bird lay on his back, kicking spasmodically, in the last agonies, with a tiny sword thrust cleaving his melodious throat in twain, so that from the instrument which used to gush with wondrous music, only scarlet drops of blood now trickled. The manikins were ruthless. Their faces were ten times wickeder than ever, as they roamed from cage to cage, slaughtering with a fury that seemed entirely unappeasable. Presently the feathery rustlings became fewer and fainter, and the little pipings of despair died away; and in every cage lay a poor murdered minstrel, with the song that abode within him for ever quenched; in every cage but two, and those two were high up on the wall; and in each glared a pair of wild white eyes; and an orange beak, tough as steel, pointed threateningly down. With the needles which they grasped as swords all wet and warm with blood, and their beadlike eyes flashing in the light of the lantern, the liliputian assasins swarmed up the cages in two separate bodies,

until they reached the wickets of the habitations in which the mimos abode. Minos saw them coming, had listened attentively to the many death struggles of his comrades, and had, in fact, smelt a rat. Accordingly, he was ready for the manikins. There he stood at the barbican of his castle, with formidable beak clenched like a lance. The manikins made a gallant charge. "What'll you take?" was rattled out by the mino, in a deep bass, as with one plunge of his sharp bill he scattered the ranks of the enemy, and sent three of them flying to the floor, where they lay with broken limbs. But the manikins were brave automata, and again they closed and charged the gallant mino. Again the wicked white eyes of the bird gleamed, and again the orange bill dealt destruction. Everything seemed to be going on swimmingly for mino, when he found himself attacked in the rear by two treacherous manikins, who had stolen upon him from behind through the lattice-work of the cage. Quick as lightning the mino turned to repel this assault, but all too late; two slender quivering threads of steel crossed in his poor body, and he staggered into a corner of the cage. His white eyes closed, then opened; a shiver passed over his body, beginning at his shoulder-tips, and dying off in the extreme tips of the wings; he gasped as if for air, and then, with a convulsive shudder, which ruffled all his feathers, croaked out feebly his little speech "What'll you take?" Instantly from the opposite corner came the old response still feebler than the question—a mere gurgle, as it were, of "Brandy and water." Then all was silent. The mino birds were dead.

"They spilt blood like Christians," said the Wondersmith, gazing fondly on the manikins. "They will be famous assassins."

CHAPTER V.

TIED UP.

Herr Hippe stood in the doorway, scowling. His eyes seemed to scorch the poor hunchback, whose form, physically inferior, crouched before that baneful, blazing glance, while his head, mentally brave, reared itself, as if to redeem the cowardice of the frame to which it belonged. So the attitude of the serpent: the body pliant, yielding, supple; but the crest thrown aloft, erect, and threatening. As for Zonéla, she was frozen in the attitude of motion;—a dancing nymph in coloured marble; agility stunned; elasticity petrified.

Furbelow, astonished at this sudden change, and catching, with all the mysterious rapidity of instinct peculiar to the lower animals, at the enigmatical character of the situation, turned his pleading melancholy eyes from one to another of the motionless three, as if begging that his humble intellect (pardon me, naturalists, for the use of this word "intellect," in the matter of a monkey!) should be enlightened as speedily as possible. Not receiving the desired information, he, after the manner of trained animals, returned to his mutton; in other words, he conceived that this unusual entrance, and consequent dramatic *tableau*,

meant "shop." He therefore dropped Zonéla's hand, and pattered on his velvety little feet, over towards the grim figure of the Wonder-smith, holding out his poor little paw for the customary copper. He had but one idea drilled into him,—soulless creature that he was,—and that was, alms. But I have seen creatures that professed to have souls, and that would have been indignant if you had denied them immortality, who took to the soliciting of alms as naturally as if beggary had been the original sin, and was regularly born with them, and never baptized out of them. I will give these bandits of the Order of Charity this credit, however, that they know the best highways and the richer founts of benevolence, unlike to Furbelow, who, unreasoning and undiscriminating, begged from the first person that was near. Furbelow, owing to this intellectual inferiority to the before-mentioned Alsatians, frequently got more kicks than coppers, and the present supplication which he indulged in towards the Wonder-smith was a terrible confirmation of the rule. The reply to the extended pleading paw was what might be called a double-barrelled kick,—a kick to be represented by the power of two when the foot touched the object, multiplied by four when the entire leg formed an angle of 45° with the spinal column. The long nervous leg of the Wonder-smith caught the little creature in the centre of the body, doubled up his brown, hairy form, till he looked like a fur driving-glove, and sent him whizzing across the room into a far corner, where he dropped senseless and flaccid.

This vengeance which Herr Hippe executed upon Furbelow seemed to have operated as a sort of escape-valve, and he found voice. He hissed out the question, "Who are you?" to the hunchback; and in listening to that essence of sibillation, it really seemed as if it proceeded from the serpent that coiled upon his upper lip.

"Who are you?" deformed dog, "Who are you? what do you here?"

"My name is Solon," answered the fearless head of the hunchback, while the frail, cowardly body shivered and trembled inch by inch into a corner.

"So you come to visit my daughter in the night-time when I am away?" continued the Wonder-smith, with a sneering tone that dropped from his snake-wreathed mouth like poison. "You are a brave and gallant lover, are you not? When did you win that order of the curse of God that decorates your shoulders? The women turn their heads and look after you in the street when you pass, do they not? lost in admiration of that symmetrical figure, those graceful limbs, that neck pliant as the stem that moves the lotus! Elegant, conquering Christian cripple, what do you do here in my daughter's room.

(To be continued.)



SHOOTING.

FOR BOYS.

OF all the recreations and amusements for boys, and there are many, including fishing, rowing, sailing, cricketing, carpentering, gardening, and I could mention a score of others, to my own knowledge, nothing has ever been said in the various journals devoted to boys, about shooting. How is this? I know of no more exciting or healthy pastime than this. Parents have a dread of trusting their boys with fire-arms, and I believe it to be one of the greatest of mistakes. "Boys will be boys" all the world over, and will endeavour by some means or other to possess themselves of such things as guns, pistols, cannons, fireworks, &c. Now, as it is impossible to keep these things from them, it is the wisest thing to teach them early their uses and dangers; had this been done, the following accident which I shall here relate would never have happened.

Tom Browning, one of the best hearted and most generous boys in the village of Y———, being an only son, was very much petted by his mother and sisters, and having no brothers, most of his time was given to taking his female relatives for walks through the green lanes and fields, searching for butterflies, to add to their collections, and such toural occupations, until one day, I remember it as though but yesterday, I met Tom, as I was going on a shooting expedition, of which I was very fond; for being early instructed

in the use and dangers of the gun, I felt quite its master, consequently was delighted when an opportunity offered to get out for the day.

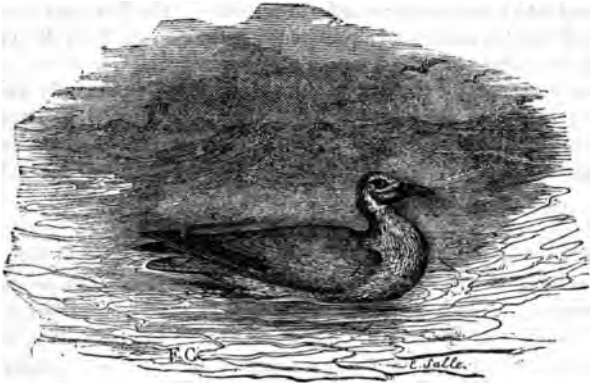
Nothing would satisfy Tom; he had made up his mind to accompany me, and go he would. The day passed pleasantly, as such times generally do, Tom went home to sleep—to dream, and in those dreams, visions of guns, birds, battles, all mixed up indiscriminately.

Tom rose next day, and determined to procure some gunpowder; with this he would spring a mine; he had heard and read of blasting rocks, and was anxious to see something in miniature. A deep hole was bored in the earth with a stick, into which he poured the powder. A lighted match was applied and the feat was accomplished. But what of poor Tom? His hand was blown completely off from the wrist, his eyebrows and eyelashes burnt off, and his face was so dreadfully scorched as scarcely to be recognized. Now, that boy had been studiously kept out of the way of powder by his parents, and was naturally profoundly ignorant of its effects or dangers. Had he been taught to handle it, as I was, he would have stood at a safe distance from the powder before lighting it, and the loss of his hand would then have been avoided.

Having now said a few words why boys should know how to use the gun and gunpowder, and could say a great deal more, but for taking up too much of your valuable time, let me tell them of a mode I have often practised, and seen others, by which a great number of larks may be shot. Get two pieces of wood, about twelve inches long and an inch wide, and nail them together in the form of a +, and upon each corner fasten a piece of broken mirror. Another piece of wood is driven into the ground, upon which fix the cross, so contrived that it may be spun round and round, like a windmill, by means of a long string, which you must get a friend to pull. I must here say that the cross with the glass on must be placed on the stump, so that the glass may reflect the rays of the sun. These arrangements complete, you stand at a distance of say thirty or forty yards from the apparatus, and whilst your friend is setting it going the larks are attracted by the glass spinning round, and hover over it. Now is your time to pull the trigger, and if you are anything of a shot a great number of birds may be brought down. The best size shot for this sport is No. 6 or 7.

Shooting of partridges, pheasants, rabbits, or hares, can only be enjoyed by persons with licenses, so I shall not describe anything concerning them. Let me just mention some capital sport, and what I consider good practice, which I have had with seagulls. The time to shoot these is between the latter end of October to the end of February, and they are to be met with all along the sea coast. It is best to procure a quantity of fishes' liver to take with you in the boat. This you can throw out when the birds are approaching, and will serve to keep them hovering near, for they will not leave while the liver remains. Having got within gun-shot of your bird, fire, and should you be fortunate enough to bring it down, let it remain in the water, for in a few minutes it will be the means of attracting others, and will serve as a decoy. Whilst I was at the sea-side I once wounded a beautiful black-backed seagull

the shot passing through the wing joint. During my stay, he served me admirably for a decoy. We took him out in the boat with us, and immediately a bird was seen we threw our decoy overboard.



MY DECOY BIRD.

This was sure to bring some sport, for the birds would fly round and round him until they were brought down by my gun. The end of my decoy bird was sad: on leaving the sea-side town for home, he was brought with me and placed in the garden where he lived on the worms, and occasionally was treated to some mussels, and grew so tame that he would walk into the house and follow me about. After I had kept him for about three months, one of his feet began to swell at the joint, and he became lame; the leg mortified and fell off completely, just above the first joint: being thus unable to walk, I was obliged to have him killed, and on examining the leg I found that a stray shot had gone right through his foot, and this had been the cause of his death. Another time I will give some account of the manner of shooting other birds, with the description of the different parts of a gun, and their several uses.

SPRING.

Ah! my beautiful violets,
 Stirring under the sod,
Feeling, in all your being,
 The breath of the spirit of God!
Thrilling your delicate pulses.
 Warming your life-blood anew,—
Struggle up into the Spring-light,—
 I'm watching and waiting for you.

Stretch up your white arms towards me,
 Climb and never despair;
Come! the blue sky is above you,
 Sunlight and soft warm air.
Shake off the sleep from your eyelids;
 Work in the darkness awhile;
Trust in the light that's above you;
 Win your way up to its smile.

Ah! do you know how the May-flowers,
 Down on the shore of the lake,
Are whispering, one to another,
 All in the silence, "Awake!"
Blushing from under the pine-leaves,
 Soon they will greet me anew;
But still, oh, my beautiful violets,
 I'll be watching and longing for you.

ORIGINAL ESSAYS. BY BOYS.

[Under this head we purpose giving any sensible Essays which our readers may send to us, and which we consider worthy of insertion. The first, sent to us by quite a stranger who has manifested already much interest in the Boys' Wonder Book, we give now; and while the insertion of "Original Essays by Boys" will afford some encouragement to the writers themselves, we hope it may be the means of inducing in others the desire to practice what is sure to be attended with considerable advantage to them in after life. Any help or advice we can give we shall do so gladly to any one who will communicate with us.—Ed. B. W. B.]

CONSCIENCE.

BEFORE offering a few remarks on this word, I would first give you the meaning of conscience. You may think it is strange to explain the meaning of such a word, as a little child must know; but it is always best to thoroughly understand what the word exactly implies. It is that which works inwardly in persons, to reprove them of their sin and justify them of innocence. I mean to show how conscience acts as a reprover and justifier.

As a reprover. We can see conscience as a reprover in every wrong deed we do, and in all we undertake in daily life, in all plans and purposes, if we do not carry them out honestly and uprightly. And, again, if a person tells you a direct lie, or injures you, or tries to throw snares in your way, makes evil of things, and publishes them about for malice and hatred against you, then his conscience is troubled. He may try to throw them off by the vain pleasures of the present, but still he knows he has wronged you, for his own hatred of you, and his conscience is in an unsettled state. It points out to him the sin he is guilty of, and till he repents of his wickedness, his conscience is never at rest.

Conscience is a great reprover to those who have committed crimes, thefts, &c. Look at a man who has committed a robbery. He can never be at rest; he is always thinking that some link has betrayed him, and that he shall be handed over to the authorities to be tried for his theft, so he cannot ever be at rest, and often gives himself up to be judged accordingly. Again, in murder, if men only thought before they acted, it would have often saved them from the gallows; but in the fury of the moment, they commit the deed. And in a cold-blooded or heart-rending murder, when they are left alone, and their sin been pointed out to them, conscience then is such a great reprover, that it is worse to them than the thought of their coming execution. In their dreams they can see plainly all that occurred when they took their fellow-man's life from him. And when great troubles come on men, they often think they come for some wickedness which they had been guilty of perhaps years ago, come fresh to their memory in one moment.

In the Bible we read of the brethren of Joseph: they recollect their brother, his entreaties for mercy, and they deaf to hear, and they now feel this trouble has been brought on them for the sin they committed in selling their brother, and their conscience reproves them greatly, and they would give anything in their

power to have Joseph again restored to them, little thinking that it was he who was with them, and ready to forgive them all their past wickedness, but reproves them, to find if his father and brother are alive.

And when pointing out religion to a man, though he may be stubborn, and have a heart which seems hard to touch, yet his conscience will trouble him to ascertain whether you are right; he will not be at ease till he is convinced of the truth. And it is often the case, by putting things clearly before men, that they are confirmed.

We have many examples from our English history that show that conscience is a great reprover. In the case of Richard III., the night before the memorable battle of Bosworth Field was greatly reproved, and all the visions of those he had so maliciously and wickedly murdered rose before him. And again in King John, his conscience reproved him greatly for the murder of his nephew, and the wicked acts he had perpetrated for the sake of gaining the crown. And in Shakspere's play of Hamlet, we see conscience acting greatly upon the king, when his deed is brought home to him, and clearly shows his guilt. And in the lines of Shakspere it is most beautifully portrayed, commencing, "O my offence is rank! it smells to heaven." It is quite certain that a man's conscience will reprove him of his guilt; if not immediately, it will rise at some time unexpectedly before him when least expected.

After showing conscience as a reprover, it is very easy to see that as a justifier it must act exactly opposite. There are cases where man's conscience is greatly troubled; it may be business matters going wrong, or some unforeseen troubles arising which he least expected. But it may be no fault on his part, and conscience justifies him of that. Though we may be surrounded with difficulties and trials, yet if we have laboured hard to keep them back, and striven to do our best, conscience justifies us. Though we may be greatly worried about our prospects, and broken-hearted to think perhaps we have not risen to a higher position than we are. And we may see those whom we have known to be on the same level as us, rising up and with better views before them, we may be greatly discouraged and low-spirited. But if we know that it has not been for the want of exertion and energy, but simply because others have had opportunities offered which we never have had, conscience justifies us that it has not been any negligence on our part, and gives us hope to try again. It also justifies us when we yield to it, and give up anything which would contaminate us.

Conscience can never be kept clear in this world, as there are so many things which arise to unsettle it; but to an extent, it can be made easier and more pleasant to all of us. Surely we have enough troubles arising in course of our daily duties, without bringing more by love of worldly pleasures. We can keep many of these off by yielding to conscience; and though we may not have a conscience free from all troubles, yet it may be greatly lessened by giving up a few of those indulgences which hinder us from acting up to good sound principles, not only to be a great reward among our fellow-men, but to be a blessing when this world and its troubles for ever end, and when we shall be all justified and reproved by the deeds we have done on earth.

ERASMUS WILLOUGHBY CLUNN.

[We insert the following in the hope of encouraging the writer to better things. Ed.]

THE DUTY OF KINDNESS TO A BIRD.

THE parrot is the best known among us of all foreign birds, as it unites the greatest beauty with the greatest docility. About the beginning of last June father brought home a parrot, which I thought was the noisest thing I ever heard. The reason was, that it had been kept in a shop where there were a lot of boys that used to illuse it. When father brought it, it made a most awful noise like the growl of a dog at everybody that went near the cage. But in a day or so with kind treatment, Poll became quite tame to us at home; but even now it will growl at strangers. But by kind treatment we have made Polly so tame, that we allow it to fly about the house. We have had it not quite a year—it can talk very well. When Polly hears a knock at the door, she will directly call out, come in; on coming in you will be asked, who are you. If anything falls to the ground, Polly will ask, what are you about. So you see by kindness you can do almost anything.

ARTHUR PIERCY.

AN ADVENTURE IN SEARCH OF SIR JOHN FRANKLIN.

ONE beautiful moonlight night, in the Arctic Ocean, might have been seen a small brig; it was the *Mary Jane*, one of those which had gone out in search of Sir John Franklin (who it will be remembered, was one of the greatest Artic explorers). The captain, a Mr. MacClaren, was about thirty-five years of age, and had earned his rank through sheer industry, and had undertaken the command of the *Mary Jane*, for expedition mainly, because he had servedas mate under Sir John Franklin in one of his previous voyages, and because Lady Franklin had solicited him too, and this was quite enough reason for the brave and daring Scotchman. The *Mary Jane* was a new and good ship, and manned by, if possible, a better crew. Most of the officers had undertaken the search, not for pay but honour, therefore it can well be imagined that Captain MacClaren was proud of both his ship and crew. But I must not pass over one or two important persons on board. To begin, there was the first mate, a good officer, and also a gentleman, who like the captain did not go out for pay, he had enough to keep him independent of the service, his name was Richard Braithwaite. Secondly, there was the surgeon, a gentleman of great skill, and also well-known in England, his name was Josiah Wyton. But we have forgotten the little brig, which now as it was morning, had all sail set, and was dancing along gracefully amidst numerous icebergs, as though she was an animated being, the crew were aloft taking in the topsail, as the breeze had begun to freshen, and the captain was afraid that if they carried too much sail, they would not be able to keep clear of the icebergs, which by this time had become much thicker; but all went well till mid-day, when a huge iceberg was seen floating across the brig's course, and it was feared that she

would strike it. Captain MacClaren immediately ordered out three boats to pull the brig's head round, so as to prevent the catastrophe. We will now follow only one of these boats, which as soon as the requisite gear had been arranged, began its work, which was most dangerous. I forgot to state that it was commanded by the first mate and a crew of ten men. After having pulled for a little while, the iceberg was evidently drawing nearer, but nevertheless they continued to pull with interrupted vigour, till at last they had to cut away from the ship, which they had hardly done when the iceberg came on them with a crash, killing two men, and throwing the rest on a kind of small table land, about ten feet above the sea. When the lieutenant had sufficiently recovered his senses to look about him, he saw one of the men sitting up and binding a handkerchief round his arm, which was very much cut and bruised, the rest lay exactly where they had been thrown, not yet having recovered their senses sufficiently to sit up. In the meantime the ship had not been able to stay her course (as the breeze which had been blowing at first now became a gale), and therefore the lieutenant made up his mind that they would most likely have to stay there all night. On the deck of the *Mary Jane* might have been seen officers and men rushing about in all directions, some having only just come on board out of the boat, others hurrying up from below with part of their dinner in their mouths. Captain MacClaren now gave orders to wear ship, so as to stay her course westward as much as possible, as they were fast losing sight of the iceberg; after this had been done, he ordered a man into the chains to sound, and finding he could anchor, he did so till the gale broke, which was on the following morning. When he immediately went in search of the boat's crew. But here we must leave him for a time and return to the iceberg, where we shall see seven of the crew (one more having been drowned), and the lieutenant sitting down and chewing little pieces of biscuit, which one of the men happened to have had in his pocket; after having finished this very slight repast, they talked over what they had better do, and it was finally agreed to tie two handkerchiefs together, and tie them to the iceberg as high as possible. By the time this was done, night came on, so they had to spend a second night on the ice, and on making a further investigation, found they had slipped down on to another flat of ice, about two feet above the sea, and when he questioned them, he found that two more had been killed, thus reducing their number to five. In about two hours the brig hove in sight, and rescued them from that horrible death with which they were threatened, viz., starvation. A boat was immediately lowered by the brig to fetch them off, and on their way they saw the body of one of their companions. Thus ended one of the numerous adventures in search of Sir John Franklin.

C. T. BURLTON.

THE DISCOVERER OF THE NORTH CAPE.

A LEAF FROM KING ALFRED'S "OROSIUS."

Othere the old sea-captain,
Who dwelt in Heligoland,
To Alfred, the lover of truth,
Brought a snow-white walrus'-tooth,
Which he held in his brown right hand.

His figure was tall and stately;
Like a boy's his eye appeared;
His hair was yellow as hay,
But threads of a silvery gray
Gleamed in his tawny beard.

Hearty and hale was Othere;
His cheek had the colour of oak;
With a kind of laugh in his speech,
Like the sea-tide on a beach,
As unto the King he spoke.

And Alfred, King of the Saxons,
Had a book upon his knees,
And wrote down the wondrous tale
Of him who was first to sail
Into the Arctic seas.

"So far I live to the northward—
No man lives north of me;
To the east are wild mountain-chains,
And beyond them meres and plains;
To the westward all is sea.

"So far I live to the northward,
From the harbour of Skeringes-hale;
If you only sailed by day,
With a fair wind all the way,
More than a month would you sail.

"I own six hundred reindeer,
With sheep and swine beside;
I have tribute from the Fins,—
Whalebone, and reindeer skins,
And ropes of walrus'-hide.

"I ploughed the land with horses,
But my heart was ill at ease,
For the old seafaring men
Came to me now and then,
With their sages of the seas,—

"Of Iceland, and of Greenland,
And the stormy Hebrides,
And the undiscovered deep:—
I could not eat nor sleep
For thinking of those seas.

"To the northward stretched the desert,—
How far I fain would know:
So at last I sallied forth,
And three days sailed due north,
As far as the whale-ships go.

"To the west of me was the ocean,
To the right the desolate shore;
But I did not slacken sail,
For the walrus or the whale,
Till after three days more.

"The days grew longer and longer,
Till they became as one;
And southward through the haze
I saw the sullen blaze
Of the red midnight sun.

"And then uprose before me,
Upon the water's edge,
The huge and haggard shape
Of that unknown North Cape,
Whose form is like a wedge.

"The sea was rough and stormy;
The tempest howled and wailed;
And the sea-fog, like a ghost,
Haunted that dreary coast,—
But onward still I sailed.

"Four days I steered to eastward,—
Four days without a night:
Round in a fiery ring
Went the great sun, O King,
With red and lurid light."

Here Alfred, King of the Saxons,
Ceased writing for awhile;
And raised his eyes from his book,
With a strange and puzzled look,
And an incredulous smile.

But Othere, the old sea-captain,
He neither paused nor stirred;
And the King listened, and then
Once more took up his pen,
And wrote down every word.

"And now the land," said Othere,
"Bent southward suddenly,
And I followed the curving shore,
And ever southward bore
Into a nameless sea.

"And there we hunted the walrus,
The narwhale and the seal.
Ha! 'twas a noble game,
And like the lightning's flame,
Flew our harpoons of steel!

"There were six of us altogether,
Norsemen of Heligoland:
In two days, and no more,
We killed of them threescore,
And dragged them to the strand!"

Here Alfred, the Truth-teller,
Suddenly closed his book,
And lifted his blue eyes,
With doubt and strange surmise
Depicted in their look.

And Othere, the old sea-captain,
Stared at him wild and weird,
Then smiled, till his shining teeth
Gleamed white from underneath
His tawny, quivering beard.

And to the King of the Saxons,
In witness of the truth,
Raising his noble head,
He stretched his brown hand, and said,
"Behold this walrus'-tooth!"

A DOG STORY.

My eldest son was crossing the fields in the country, some distance from any dwelling, when he was pursued by a large fierce dog belonging to the gentleman whose land he was crossing. He struck into a piece of woods and the dog gained upon him; when he looked around to see how near the creature was, and, stumbling over a stone, pitched off a precipice and broke his leg. Unable to move, and at the mercy of the beast, the poor fellow saw the dog coming down upon him, and expected to be seized and torn; when, to his surprise, the dog came near, and, perceiving that the boy was hurt, instantly wheeled about, and went off for that aid which he could not render himself. There was no one within reach of the child's voice; and he must have perished there, or have dragged his broken limb along, and destroyed it, so as to render amputation necessary, if the dog had not brought him help. He held up his leg and it hung at a right-angle showing him plainly the nature of his misfortune and the necessity of lying still. The dog went off to the nearest house and barked for help. Unable to attract attention, he made another visit of sympathy to the boy, and then ran off to the house, making there such demonstrations of anxiety that the family finally followed him to the place where the child lay. Now, observe that this dog was pursuing the child as an enemy; but the moment he saw his enemy prostrate and in distress, his rage was turned to pity, and he flew to his relief. Here was true feeling, and the course he pursued showed good judgment. He was a dog of heart and head. Very few men, not all Christians, help their emenies when they are down. Some do not help their friends when they fall. This dog was better than many men who claim to be good men. I do not say that he reasoned in this matter: but there is something in his conduct on this occasion, and looks so much like the right kind of feeling and action, that I think it deserves to be recorded to his credit. As few dogs will read the record, I commend the example to all mankind for imitation.

EXAMINATION PAPERS.

PREPARED FOR AN EXAMINATION OF CANDIDATES FOR THE COLONIAL OFFICE.

ENGLISH LITERATURE.

1. What do you consider to be the true epoch of the commencement of English literature? Give reasons for your opinion.

2. Show in what manner the Prologue to the Canterbury Tales throws light upon the social life of the period.

3. Examine the Scottish poetry of the 15th and 16th centuries, and describe the leading characteristics of the principal authors.

4. State what you consider to be the chief excellencies, and also the chief defects, in the poetry of the Elizabethan age.

5. Describe the plot, or poetical framework, of the Faerie Queene. Is the poem a complete work?

6. Analyse the stanza of Spencer.

7. Compare any tragedy of Shakspeare with one by Sophocles or Euripides in reference to the rules of art which govern the construction of the plot in each, and the effect which each is calculated to produce upon an audience.

8. In what plays of Shakspeare do the following characters occur:—Miranda, Escalus, Adriana, Gratiano, Thersites, Iachimo, Friar Laurence, Viola?

9. Describe the position which Hooker occupied as a controversialist. From whom have we the best account of his life?

10. Upon what occasion and with what object in view did Milton write his Areopagitica? Give an outline of the argument of this treatise.

11. Explain the titles,—Iconoclastes, Colasterion, Tetrachordon, Smectymnuus, Histriomastix, Annus Mirabilis.

12. Describe, with illustrations, the nature of the foreign influences which were acting upon English literature in the reign of Charles II.

13. What was Pope's opinion of Dryden as a poet? Quote passages in support of your answer.

14. Characterise the humour of any one among the following English humorists:—Addison, Sterne, Fielding, Goldsmith.

15. What is your estimate of Dr. Johnson's merits as a writer, and also of the effects of his influnce on literary style?

16. Name the principal works of the poet Cowper, and criticise any one of them.

17. Name our best writers of contemporary history; state at what period each lived; and give your estimate of the peculiar excellencies or weak points of any one of them.

18. Name the satire which you consider to be the most forcible in the language. Of what ancient poem is Johnson's "London" a free version?

19. Name the authors of the the following works, and arrange them in order according to the date of their death—Religio Medici; Utopia; the Battle of the Books; the Thistle and the Rose; Rasselas; the Davideis; the Essays of Elia; Madoc; the Rejected Addresses; and the plays — Don Sebastian, Revenge, Cato, the Rehearsal.

20. Name the authors of the following lines, and state, if you can, the particular work from which each passage is taken:

(a) "Westward the course of empire takes its way."

(*b*) "That air and harmony of shape express,
Fine by degrees and beautifully less."

(*c*) "There's not the smallest orb which thou behold'st
But in his motion like an angel sings,
Still quiring to the young-eyed cherubims."

(*d*) "I am as free as Nature first made man,
Ere the base laws of servitude began,
When wild in woods the noble savage ran."

(*e*) "Till oft converse with heavenly habitants
Begin to cast a beam on the outward shape,
The unpolluted temple of the mind,
And turns it by degrees to the soul's essence,
Till all be made immortal."

ENGLISH HISTORY.

1. At what period in English History did the fusion of the Anglo-Saxon and Norman races begin, and at what period was it completed?

2. Had Stephen of Blois any right to the English throne? Was there anything in the feeling of his race and age which tended to make his claim better then than it would be considered now?

3. Describe the origin of Trial by Jury, and show how it has reached its present form.

4. What was the attitude taken by the Plantagenet Dynasty towards the Papacy? Mention the English Sovereigns who have especially favoured the Church of Rome.

5. Describe the condition of Ireland in the reign of Henry the Seventh.

6. Distinguish between the "Petition of Right" and the "Bill of Rights."

7. "The Bank of England," "A standing Army," "The National debt." When do we first meet with these terms in English History?

8. Write a short character—*not a life*—of *three* of the following: Wolsey, Strafford, Cromwell, William the Third, Sir Robert Walpole, Charles Fox.

9. Mention any great political changes which may have been made in the Home Government since 1688.

10. Give a list of the Colonies of Great Britain, and state when and how each of them was acquired.

ENGLISH LANGUAGE.

1. What are the chief grammatical changes which converted the Anglo-Saxon into the English of the fourteenth century? How far are these changes due to the influence of the Norman conquest? Mention the chief grammatical differences between the English of the fourteenth century and that of the present time.

2. "The primary words in our language are almost all Saxon, the secondary, as they may be called, are mostly of French, the tertiary of Latin origin." Illustrate and explain fully this statement. When and how were the words of Latin origin, which are not derived through the French, chiefly introduced into English?

3. Point out the chief peculiarities in the grammatical forms and vocabulary of Spencer.

4 Explain the meaning of the Anglo-Saxon terminations, *—er*, *—stre*, *—en*, and give examples of their use in modern English. What are the terminations of the plural of Anglo-Saxon nouns, and in what forms do they occur in modern English. Prove that the words *alms* and *riches* are singular.

5 Explain the origin of the final letters in the following words:—*mi-ne*, *thei-r*, *whil-om*, *he-re*, *wh-y*, *on-ce*, *twi-ce*, *thri-ce*.

6. Addison asserts that "the single letter *s* on many occasions does the office of a whole word, and represents the *his* and *her* of our forefathers." Criticise this statement, and state your own opinion upon the subject.

7. Give a full list of the terminations of English diminutives, with examples, and compare them with the corresponding forms in the cognate languages.

8. Mention the various ways in which derivative adjectives in English are formed, specifying the force of each termination and giving examples. Give a comparison of at least six adjectives of Anglo-Saxon origin with approximate words of Latin origin (such, for example, as *feminine* and *womanly*), and discriminate the shades of meaning of each pair.

9. Explain the different uses of *it* as an Indeterminate Pronoun in old English writers. What is the etymology of *such* and *which*?

10. What is the origin of the verbal noun in *-ing*, and how is it used? Explain the phrase "the house is a building."

11. Point out the way in which the *-ode* of the Anglo-Saxon præterite has been changed into the present English præterite, and give the various forms of this suffix used by some of the chief English writers. What is the origin of the suffix?

12. Trace the history of the Anglo-Saxon *weorthan* in old English literature. Does it still occur in any form in the English language?

13. What is the origin of the words *shall* and *will*? Explain fully the distinction between them, and state rules for their use. Give the exact force of the one used in each of the following passages from Shakspere, and show that the other would have been inadmissible:—

(*a*) Mark Antony *shall* say I am not well:
And for thy humour I *will* stay at home.

(*b*) But let
The frame of things disjoint, both the worlds suffer,
Ere we *will* eat our meal in fear, and sleep
In the affliction of these terrible dreams.

(*c*) I have a venturous fairy that *shall* seek
The squirrel's hoard and fetch thee new nuts.

(*d*) ——It is a mind
That *shall* remain a poison where it is,
Nor poison any further.

(*e*) ——Whose hap *shall* be to have her
Will not so graceless be to be ingrate.

14. Horne Tooke writes:—"I believe they will be as little able to justify their innovation as Sir Thomas More would have been to explain the foundation of his ridiculous distinction between *nay* and *no*, and between *yea* and *yes*." What was the distinction made by Sir Thomas More? Are there any reasons for believing it to be well founded? Explain the origin of these affirmative and negative particles, and compare them with the corresponding words in the other Teutonic languages.

15. Explain the etymology of the following words, and trace the history of those which have had different meanings at different periods of the language:—*antick*, *average*, *bailiff*, *premises*, *species*, *mystery*, *exorbitant*, *affray*, *anent*, *nice*, *pageant*.

16. Give a brief criticism of the English dictionaries of Johnson, Webster, and Richardson, pointing out the peculiar merits and defects of each work.

FRENCH.

A.—*History.*

The Questions to be answered in English.)

. Give the principal events of any one of the three following reigns: Charles VIII., Charles IX., Charles X.

. Name the Sovereigns who have successively reigned in France since the fall of Napoléon, in 1815.
Who are, at present, the pretenders to the throne of France? Give their names, and state upon what right their claims are founded.

. Which were the celebrated regencies in France? After having enumerated them, give the chief events of any one of them.

. When did the movement of the Reformation begin in France? Was there any such movement before Luther? Who were the most celebrated French reformers, and what was their fate? How did it happen that the Reformation did not spread in France as it did in more northern countries?

What is understood by "les Etablissements de St. Louis," "les Vêpres Siciliennes," "la Jacquerie," "le Serment du jeu de paume," "le massacre des prisons, on de Septembre," "le Systême continental," "la Sainte-Alliance?"

B.—*Literature.*

The Questions to be answered in English.)

. Choose one of the great prose writers of the XVIIIth century, and state what you know of his life and writings.

2. State in general terms, the most remarkable traits of French literature in the XVIIth century,—in what it differs from that of the preceding and following centuries; under what influence it was developed, and what was its action upon the literature of England.

3. Who are the most celebrated critics now living in France?
Who are the most remarkable poets? Could any comparison be made between them and the modern English poets?

4. Compare Thiers and Guizot as historians, orators, and statesmen.

5. Scan the following lines, and give the rules of French versification:—

"Tout se tait, tout a fui dans une horreur profonde,
Et, seul, je semble errer sur les débris du monde.
Je n'irai pas plus loin, j'attends ici mon sort.
Ce n'est point d'aujourd'hui que je brave la mort."

C.—*Subject for Composition.*

(*The Candidates may choose any one of the following subjects for original composition in French.*)

1. La campagne de Crimée.

2. La guerre civile en Amérique.

3. De l'Inde; de l'action civilisatrice que l'Angleterre exerce sur elle; des progrès qu'elle a faits dans le passé, et des espérances qu'elle donne pour l'avenir; de la part attribuée à l'administration civile sur son développement progressif.

CORRESPONDENCE.

[All communications to be addressed to the Editor, at the Office, 3, Amen Corner, Paternoster Row, E.C.]

To the Editor of the Boys' Wonder Book.

Dear and Rev. Sir,—I think it would be well to devote a few columns of the Boys' Wonder Book, monthly, entirely for communications and intercommunications in Natural History. I do not infer to any particular branch of Natural History, but to the science in general, such as Botany, Entomology, Orinthology, &c. All who have an observant mind cannot fail to be struck with the wonders and beauties of creation which they daily see around them; and if some of these wonders were recorded, it would prove an unfailing source of amusement and instruction, and be the means of inciting many to take up this beautiful and peaceable study. The capture of a butterfly or moth, any curious fact relating to an insect, or from those who have not an entomological turn of mind, an account of any rare flower or plant, or any interesting animal, the habits and haunts of curious birds, &c., which may occur in their locality, would, I think, be a great addition to the columns of the Boys' Wonder Book.

F. Wilkinson,

High Street, Market Harborough.

[We readily insert our Correspondent's letter, and shall be happy to devote space to any communications from our readers on any interesting subject.]

F. Wilkinson.—I notice, in the last number of the Boys' Wonder Book, an interesting communication in Natural History, by a correspondent who signs himself D. J. K. Can D. J. K. tell me the name of the spider, the chrysalis of which he says was occupied by several *little spiders?* Might he not have mistaken a chrysalis of a lepidopterous insect for that of a spider, and the so called little spiders, instead of belonging to the chrysalis, had they not more probably have been feeding upon its interiors?

H. M.—1. Black or maroon velvet is better for backing up than jet varnish. If you use purple plates no backing will be required, and the tone will be superior, but some little practice in developing may be necessary. As the image does not appear so strong on purple glass before fixing as it would on plain, there is a liability to carry the development too far.

2. There is no better positive developer than the following:—

Nitrate of baryta	4 drachms
Protosulphate of iron ..	6 drachms
Nitric acid ..	40 to 60 minims
Alcohol, about	4 drachms
Water	8 ounces

Reduce the nitrate of baryta to a fine powder in a mortar, and then add half the water and the nitric acid. Now powder the sulphate of iron, and dissolve in the other four ounces of water. Mix the two solutions together, stirring well for two or three minutes. The sulphuric acid will leave the iron and go to the baryta, forming sulphate of baryta, which is insoluble in water, and falls down in a white powder. The nitric acid from the baryta combines with the iron, and forms nitrate of iron. Let the solution stand an hour or two, then pour off the clear liquid, which should be of a pale green colour. If not perfectly clear, filter once or twice, then add the alcohol, sufficient to make it flow readily over the plate.

Blind Tom.—According to Dr. Ure, a cubic inch of water will produce a cubic foot of steam, or 1728 cubic inches of

steam; and this steam will heat six cubic inches of water from the atmospheric temperature to 212° to effect its condensation; hence six times the difference of temperature, or fully 900° Fahr., are employed in giving elasticity to steam. 100 cubic inches of steam at the standard pressure, weigh 30 inches, 14·68 gr.

ALFRED WEST (Manchester). — In a future number we may give some chapters on the subject you mentioned. The following is a list of colors for producing various tints:—

Rose green.—Gamboge, Prussian blue, and a little carmine.

Pea green.—Prussian blue and gamboge, most of the former.

Intense green.—Prussian blue and gamboge, most blue, with a little black.

Purple.—Lake and Prussian blue.

Geranium.—Cobalt blue and carmine.

Puce.—Lamp black and lake.

Grey.—Lamp black, Prussian blue, and gamboge.

Orange.—Indian yellow, light carmine over it.

F. G. GLOVER asks us which are the best varieties of fowls to keep, but he does not mention for what purpose. If he requires plenty of eggs, then let him procure some black Spanish, Crèvecœur, La Fleche, Houdan, or Dorkings—these are good laying birds, and give large eggs. If he wants fowls to sit, he must try with bantams, game fowls, &c. Now is the best time to commence laying in your stock. Read the work, "Eggs and Poultry as a Source of Wealth," post free, 14 stamps, you will then derive every information.

A. B.—Touch-paper is made by soaking a piece of blue or purple paper in a solution of spirits of wine, or vinegar, in a little saltpetre. Let the paper then be dried, and it is fit for use. The composition for making squibs is as follows:—16 parts gunpowder, 1 charcoal, and 1 brimstone; or 1 part steel filings, 1 charcoal, 1 sulphur, and 4 powder.

JOHN WILKINSON (Rugby).—We cannot insert your request, it being an advertisement, and must be paid for as such. Several boys have toys, instruments, &c., that they would wish changed for others of a different sort, and no doubt that, if you were to advertise, it would be the means of your making the exchange you desire.

ROBERT WILSON, A.B., (Dartford), and JOHN MITCHELL (Glasgow). — The back numbers are *now* all in print, and can be had of any bookseller, or will be sent direct on receipt of stamps. The next number (No. 6) will complete our first volume, and cases for binding the numbers in cloth, with full gilt sides and back, and lettered, may be had of your news-agent, price 1s. 6d. each.

FORTUNATUS.—Silk-worms' eggs may be purchased in Covent Garden Market.

JOHNSON LEE (Dorking).—What you mean is the gunwale. It is the upper rail of a boat or vessel, and is pronounced gun'el.

NOTICE TO SUBSCRIBERS.

Cases for the Half-yearly Volume will be ready by the end of April, and may be had, price 1*s.* 6*d.*, through any Bookseller, or at the Office of the BOYS' WONDER BOOK, 3, Amen Corner, Paternoster Row, E.C.

TO OUR READERS.

ADDRESS.

To the youthful mind the World is full of Wonders. Every unfamiliar thing is wonderful. Every fact in the Book of Nature, every event in the Annals of History, every incident in the Lives of the Good and Great, is a marvel to young minds, and needs no gloss to render it attractive. It is an error to suppose that the dawning intellect requires morbid and sensational intellectual food. Youth is the most susceptible period of life, when the impressions received, the tastes formed, and opinions adopted, mould the character for good or evil. The boy is the father of the man. How important then it is that first impressions should be sound and truthful, for unlearning is a most difficult, and nearly impossible task.

With a view of inspiring a taste for whatever is beautiful in Nature, admiration for the excellences of Art, emulation of the conduct of those who have contributed by their example to the ennobling of mankind, and an interest in the patient and persevering labours of those who have devoted their lives to exploring the paths of Science, we now present our WONDER BOOK to the rising generation.

In our efforts to instruct and amuse, truthfulness will be our chiefest guide. In the unperverted youthful mind, a love of truth is instinctive. To gratify this love we shall draw as much as possible from the pages of fact and experience, without, however, deserting the flowery paths of pure fiction. In our WONDER BOOK, fiction will be given for what it really is, and never disguised as truth.

The youth of each succeeding generation occupies a higher platform than its predecessors. In order to successfully grapple with the future, it needs new guides and interpreters, animated by the spirit of the present hour rather than by the traditionary forms of the past. In the WONDER BOOK it will be our aim to lead our youthful readers through easy and pleasant paths to an appreciation of this new world of Nature and Art. The results of explorations into the three kingdoms of Nature, the wonders of the Heavens, the Atmosphere, and the Ocean, will be presented in new and attractive guise, by the pens of the ablest writers. The Historian and the Biographer have culled fresh facts, Travellers have enriched Geographical Science with many new and marvellous pages, which will be duly garnered into our WONDER BOOK. We shall also supply material for the exercise of rational ingenuity and profitable industry, for healthful recreation and amusement, and, in short, by every means in our power, strive to excite in the minds of our readers ennobling thoughts, pure tastes, and a desire to imitate the noble examples of industry, integrity, and self-denial we shall place before them.

The WONDER BOOK is printed in a new, clear, readable type; the wood-cut illustrations are of the highest excellence: in addition to which, each number is illustrated with a beautiful design, printed in colours, illustrating some curious phenomenon of Nature or feature in Natural History.

The topics that will be successively treated in the WONDER BOOK are almost too numerous to be detailed in a Prospectus. We may, however, mention Natural History, Science, History, Biography, Mechanical Recreations, Games and Sports, Photography, Natural Magic, Travels and Adventures, Manners and Customs, Legends and Fables, the Art of Painting, Engraving, Music, Poetry, and the Wonders of the Heavens and of the Ocean.

As exercises for ingenuity, we propose to substitute for Riddles, Puzzles, &c., the various examination papers for Candidates for the various appointments in the Civil Services, as being equally amusing, and far more profitable and instructive. Prizes will be awarded for special subjects submitted to competition among the subscribers to the BOYS' WONDER BOOK.



Vincent Brooks, lith.

METEORS.

BESIDES the fixed stars, planets, and comets, there is a miscellaneous class of luminous bodies, which may be regarded as celestial, inasmuch as they appear in the heavens, but of whose origin and nature we know comparatively little. These are called shooting stars, aeroliths, meteors, and thunderbolts. It is now generally supposed that the aeroliths are *asteroids*, that is, small bodies revolving round the sun in paths describing conic sections, and, like the planets, obeying the laws of gravitation. When they approach the earth near enough to enter its atmosphere, the friction due to their prodigious velocity causes them to become incandescent, and consequently luminous, they sometimes explode with a loud noise, and the fragments fall upon the earth.

The fall of stones from the atmosphere was for a long time doubted, until the 26th of April, 1803, a shower of stones fell in broad daylight, near Laigle, in the department of Orne, in France. Over an extent of surface measuring seven miles by three, two or three thousand stones fell, the largest of which weighed 17 pounds.

It is remarkable that these aeroliths are composed only of such substances as we are already familiar with ; they contain no new or strange elements. They are classed as stony and metallic, according to the predominance of the material of which they consist. Iron, in a native state, exists in all of them, as well as in the state of oxide and sulphate. They are too hot to be touched with impunity at the moment they fall, though they have cooled down greatly from the state of incandescence : they are usually covered with a black crust. Meteorites also contain nickel, chromium, phosphorus, silicates of lime, magnesia, and alumina. These are the same elements as our globe is composed of; but the manner in which they are associated in aeroliths imparts to them a common character, which enables us to distinguish them. A large number of mineral masses exist on the surface of the earth, which, on account of their composition, are considered to have a meteoric origin, although they were not seen to fall.

But the circumstances attending the fall of aerolites have never been fully explained. It is usually preceded by a rumbling noise, followed by an explosion like thunder or the blowing up of a distant powder mill. Sparks, followed by clouds of smoke accompany the explosion, and a large number of fragments fall to the ground.

Aerolites are generally seen only a few moments before they reach the earth. They are occasionally of great splendour, emitting a light making night appear as day ; a bright tail accompanies them, which may be real, or only an optical illusion, as in the case of rapidly whirling a stick ignited at the end. They sometimes pass quietly over the place where they are observed,

and probably explode and fall to the ground at a greater or lesser distance from the observer.

Aerolites are very regular in form, somewhat rounded, all angles being removed by fusion. They weigh from a few grains to several thousand pounds. One in La Plata weighs 550,000 pounds.

These meteors have been known from the remotest antiquity. They were deified, and set up to be worshipped, instead of the statues of the god whom they were supposed to represent.

Anaxagoras thought aeroliths fell from the sun, other philsophers thought they were ejected from volcanoes in the moon ; but the most rational opinion is that they are asteroids. The notion that they originate in our atmosphere cannot be sustained. None of the elements of which aeroliths are composed are ever found in the atmosphere ; besides, it would be necessary for these elements to exist in the gaseous state, and in very large quantities, to give existence to stones weighing several hundred pounds. If aeroliths were formed in the atmosphere, they would obey the law of gravity, and fall in a straight line, which they do not, for in their fall they have a horizontal velocity of twelve leagues a second, being double that of the earth round the sun.

CHINESE ENGLISH.

THE Chinese, not being able to pronounce the word business, call it "bigeon," which has degenerated into "pigeon," so that this word is in constant use amongst them. A Chinaman will tell you, "it is not my pigeon." "I no savez that pigeon." "I made no good pigeon." "What pigeon you want done?" &c. The word "savez" is invariably used for "know," "masqui," for "never mind," "catch," for obtain, get, or procure; as, "I no can catchee any fruit, or coals." "Can catch," means "I can get you some." "Can" and "no can," without the pronoun, are in constant use. "Chin-chin," a Chinese word for how do you do, is often used, even by Europeans, who, in sending a message, say, "Give my chin-chin to Mr. So-and-So," &c. Every boatman is called "Sam," never by his own name. "Chow, chow," the Chinese for food or meals, is in common use. As in this phrase :—"Sam, when you have catchee chow-chow, I want you chop-chop" (quickly). This double form of word, in the Chinese language, occurs often, as "man-man, stop!" &c. "Wylow," "begone," and "quisi," man, meaning robber, pirate, or bad man, are terms they do not like applied to them. Some few have acquired a tolerable facility of speaking English, but preserve the above-named style of idioms. The term "fan-qui" which means

literally "foreign-devil," I have been assured by intelligent Chinese, is not always applied to Europeans with a bad intention, that word signifying stranger, or foreigner also. But I can scarcely give credit to this information, since every Chinese mother, as I have elsewhere been informed, in order to inspire terror into a naughty child, has only to threaten to give him or her, as the case may be, to the "fan-qui," when the little "celestial," in dread of so awful a fate as that of being delivered over to "the white devil," instantly becomes quiet and submissive, and clings to her in fear and trembling. In the streets of Canton, I have been more than once saluted with the sot-fanqui, or "Kill the foreign devil;" then, there is no mistaking the sense it is used in.—*Berncastle's Voyage to China.*

GOD HELP THE POOR.

God help the poor, who on this wintry morn
Come forth of alleys dim and courts obscure.
God help the poor pale girl, who droops forlorn,
And meekly her affliction doth endure.
God help the outcast lamb! she trembling stands,
All wan her lips, and frozen red her hands;
Her mournful hands are modestly down cast;
Her night-black hair streams on the fitful blast;
Her bosom, passing fair, is half revealed,
And, oh! so cold, the snow lies there congealed;
Her feet benumbed, her shoes all rent and worn,
God help thee, outcast lamb, who stand'st forlorn!
God help the poor!

God help the poor! another have I found,
A bow'd and venerable man is he;
His slouched hat with faded crape is bound;
His coat is gray, and threadbare, too, I see;
"The rude winds" seem "to mock his hoary hair,"
His shirtless bosom to the blast is bare.
Anon he turns and casts a wistful eye,
And with scant napkin wipes the blinding spray,
And looks again as if he fain would spy
Friends he hath feasted in his better day.
Ah, some are dead, and some have long forborne
To know the poor; and he is left forlorn.
God help the poor!

MAY-DAY AND WHITSUNTIDE.

WHITSUNTIDE is the annual commemoration of the Feast of Pentecost. In the Roman Catholic times of England it was usual to dramatise the descent of the Holy Ghost in the churches, hence the old rhyme of Barnaby Gooe.

On Whitsunday, whyte pigeons tame
 In strings from heaven flie,
And one, that framed is of wood,
 Still hangeth in the skie.
Thou seest how they with idols play,
 And teach the people too;
None otherwise than lettle gyrles
 With puppets ave to do.

There is scarcely a poet or prose writer but praises the mild, the genial "merry month of May, when bees from flower to flower will hum;" May the bright morning star, day's harbinger dancing from the east, bringing in her train the fruits and flowers and the happy sport.

May-day in the time of Henry VIII. presented an animated scene. Citizens of all classes met in their respective parishes; then, dividing into companies, they branched off, some to Highgate or Hampstead, some to Greenwich and Shooter's Hill, to dance round the May-pole. The King and Queen (so old Hall tells us), accompanied by a gay cavalcade, rode to the high ground of Shooter's Hill to take the open air, and as they passed on their way they espied a company of tall yeomen, clothed all in green, with green hoods and bows and arrows, to the number of 200.

Then one of them, called Robin Hood, asked the King and Queen to come into the wood and see how the outlaws lived, which they graciously did; then they came to a large arbour, made with boughs, with a hall and a great chamber covered with flowers and sweet herbs, at which their Majesties were mightily pleased.

Then said bold Robin Hood, "Sir, the outlaw's breakfast is venison, and therefore you must be content with that fare." Of which they all partook, and then departed.

The great Maypole erected opposite to the Church of St. Andrew's Undershaft, St. Mary Axe, was once the scene of an unlucky brawl, which caused it afterwards to be called "Evil May-day."

A broker, one John Lincoln, and Dr. Bell, a canon, preached against all foreigners and strangers, which gave rise to much bickering and heart-burning, which was still further aggravated by a report, that on "May-day the citizens would slay all the aliens, which caused many and divers strangers to flee from the City." The famous Sir Thomas More took an active part in suppressing these rumours; but that formidable body the "prentices of London" was at this time in full vigour, and the cry of "Prentices, pren-

tices ! Clubs, clubs !" resounded through the streets, which ended in serious tumult and fighting.

At St. Martin's Gate, the fight soon waged furiously ; the people within threw out stones and bats, and the strangers' houses were broken open, and some fired ; but the "Mayor," being on the alert, went to work, and capturing some, sent to the Tower and other places of confinement more than 300 men and women, and lads not above thirteen or fourteen years old. John Lincoln, the broker, and twelve of the most desperate were executed, the others were set at liberty ; and thus ended the "Evil May-day."

In those days archery was the great amusement, and the great archery grounds of London were "Finsbury Fields." Grub Street, now known as Milton Street, was a great stronghold of "bowyers, fletchers," and "stringers." Beyond Grub Street the meadows were dotted in every direction with the archers' marks. In 1786, the archers and their games had gradually died out.

Among other May games, quarter-staff and wrestling stood prominent: the latter still survives. On a certain day, the Lord Mayor rode to Finsbury Fields, with his sceptre, sword, and cap borne before him, followed by the aldermen, all on horseback, in their scarlet gowns and golden chains ; and a tent being pitched, the wrestlers performed before them. When that was over, a parcel of live rabbits were turned loose among the crowd for their especial amusement.

The milkmaids of London used to go in grand procession on May-day ; and the milkmaids' garland must have had a very pretty effect.

The garland was a pyramidical frame, covered with damask, glittering on each side with polished silver plate, and adorned with knots of gay coloured ribbons and posies of fresh blooming flowers, surmounted by a silver urn or tankard.

The garland being placed on a wooden horse, was carried by two men preceded by a pipe and tabor and a fiddle ; the gayest milkmaids followed the music, others followed the garland, and stopping before the houses of their customers, they danced the "milkmaids' garland."

The plate in some of these garlands was very costly, and was generally furnished by the pawnbrokers at so much per hour, and a bond for its safe return given by a responsible housekeeper.

Then there was another garland, less costly but still effective. A beautiful country girl, "dressed all in her best," with flowers in her hat and on her bosom, led her cow by a rope depending from its horns, garlanded with flowers and knots of ribbons; the horns, head, and neck of the cow were decorated in a like manner ; a fine net, covered with flowers, covered Bess's back. The proprietress followed on one side, in "gay attire," a sprig in her hat, a blooming posy in her hand, and ribbons in her stomacher ; and so through the street they took their quiet way.

In May Fair, Piccadilly, a great fair was held (imagine one now in that aristocratic region), and among other sports "duck hunting" was somewh[illegible]

celebrated. A stage for mountebanks was erected there, on which a pantomime was played with great success. Then an entertainment called the "Beheading of the Puppets," and the "Strong French Woman;" and here too went "Tiddy Doll," the celebrated vendor of gingerbread. This then celebrated character assumed all the airs of a person of rank; he wore a white gold-laced suit of clothes, laced ruffled shirt, laced hat and feather, white silk stockings, and a white apron edged with lace.

He is in Hogarth's print of "The Execution of the Idle Apprentice at Tyburn," and the Lord Mayor's Show was not perfect without him. The Fair becoming a great nuisance to the neighbourhood, was done away with soon after 1816.

The first day of May used to be the great "Festival of the Chimney Sweepers," but like a great many other festivals and games, has vanished. Their garland (not so costly as the "Milk Maids,") was a large cone of holly and ivy framed upon hoops, which gradually diminished in size to an apex, surmounted by a floral crown with bunches of ribbons floating from it. Its sides were decorated in the same manner, and within was the man (generally called the Jack), who walked and danced with it unseen, giving the resemblance of a moving hillock of evergreens. And then the sweeps, with their jackets and caps bedizened with the gayest gilt embossed paper, their black faces and legs grotesquely colored with Dutch pink, their shovels scored with the crimson pigment, interlaced with the whitest of chalk.

Such was the chimney sweep's diversion on the 1st of May forty years ago. Parliament since then have abolished the climbing boys, and Time assisting them, the fun and originality of the sweeps have been brushed away.

In the south of Ireland, May-day is held as a festival by bands of morris dancers, composed of the most athletic young men and good-looking lasses—the men for the hurling matches, the females for the dance. Two of them bear a holly bush hung round with hurling bells, the May-day present of the girls to the youths of the village. The bush is decorated with long ribbons of the gayest color, or gay-colored papers cut to represent them. The procession is always preceded by a band of music, the national pipes of course, and always a fife, tambourine, and drum. A clown too is in attendance, wearing a frightful mask, and bearing a long pole with shreds of cloth nailed to the end of it like a mop, which occasionally he dips in a pool of water or puddle, and besprinkles such of the crowd as press too much on his companions, much to the delight of the young spectators; and so they parade the towns and villages in the day-time, calling at the seats of the gentry, who reward them for their exertions. The evening is spent in drinking, sprinkled occssionally, just to keep their hand in and diversify the monotony, by a few friendly fights.

May-eve is considered a time of peculiar danger. The "Evil Eye" is deemed to have more than its usual malignity, and the nurse who would walk in the open air with a child in her arms, would be reprobated as a monster. On May-eve also they have a custom of making cows leap over

lighted straw or faggots, in order to propitiate the "good people" (the fairies) from pilfering the milk, sure. Then they have the dangerous practice of the nettle game. Boys get bunches of nettles, and strike the hands and faces of each other. This is a barbarous custom, seldom used now.

In Italy the youth of both sexes were accustomed to go into the fields on the calends of May, and bring thence branches of may, singing all the way as they came, and so place them on the doors of their houses. This was the relic of an ancient custom among the heathens, who observed the first four days of April and the first of May in honour of the goddess Flora, the deity presiding over flowers.

The month of May was deemed by the Romans to be under the protection of Apollo. The May-pole that stood longest near the Metroplis, was near Kennington Green, it remained till the year 1795. In Scotland, on the first of May, the May-dew dancers assemble at Arthur's Seat, Edinburgh.

Many of these customs have gone, and it is useless sighing for their revival, but the same unperishable attractions remain, the meadows, and the green woods to rejoice our spirits, the beauty and fragrance of the sweet flowers, with the harmony of the birds praising God after their kind, all reminding us of the homage and gratitude due from us to our Creator for His beneficence and goodness. May morning can never cease to have a poetical interest, for it has been hailed by John Milton in one of the most exquisite songs in the English language.

"Now the bright morning star, day's harbinger
"Comes dancing from the east, and brings with her
"The flow'ry May, who from her green lap throws
"The yellow cowslip, and the pale primrose,
"Hail beauteous May, that dost inspire
"Virtue and youth and warm desire;
"Woods and forests are of thy dressing,
"Hill and dale doth boast thy blessing,
"Thus we salute thee with our early song
"And welcome thee, and wish thee long.—

SHIPWRECK AND CAPTIVITY OF CAPTAIN JOHN RILEY.

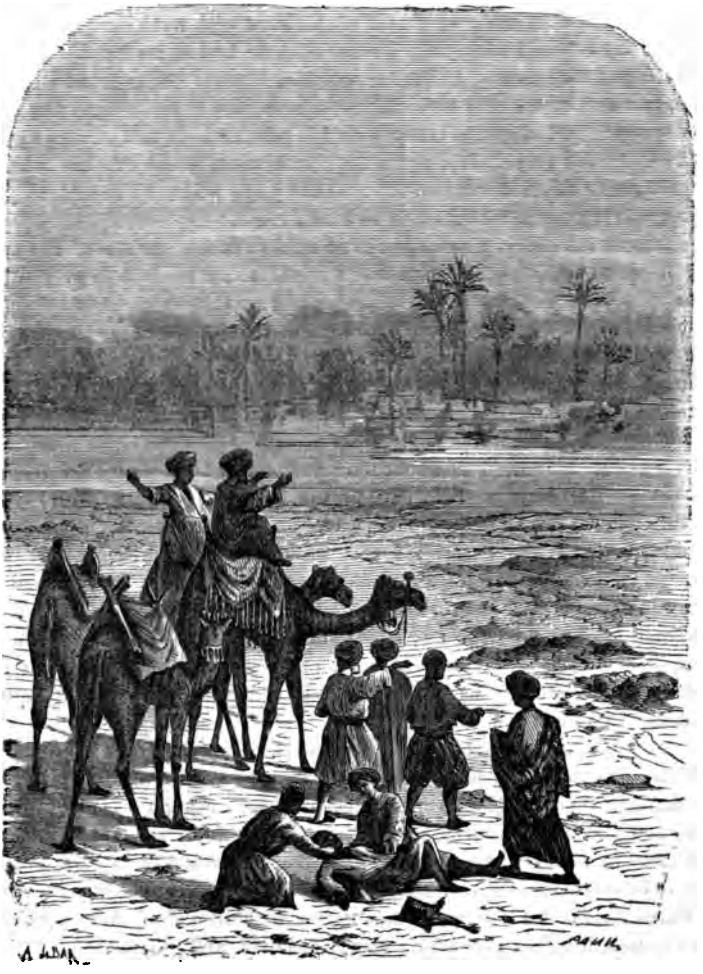
CHAPTER IX.

WE CONTINUE OUR JOURNEY IN THE DESERT IN GREAT SUFFERING AND AGONY—DREADFUL CONDITION OF MR. WILLIAMS—I CHANGE MASTERS—THE CRUELTY OF MY NEW MASTER—SUFFERINGS OF MR. CLARK—WE RECEIVE KINDER TREATMENT—WE ARE ANNOYED BY A NEGRO SLAVE—BEING IN DANGER OF FAMINE WE RETREAT TOWARDS THE SEA COAST—OUR FEAST OF SNAILS—MY COMPANIONS BECOME FRANTIC WITH HUNGER, AND ARE IN DANGER OF BECOMING CANNIBALS—RELIGIOUS SERVICES IN THE DESERT—ARRIVAL OF TWO STRANGERS.

AT daylight (Sept. 13th) we were called on to proceed. The families struck their tents, and packed them on camels, together with all their baggage. They made us walk and keep up with the camels, though we were so stiff and sore all over that we could scarcely refrain from crying out at every step, such was our agony; still pursuing our route to the S.E. In the course of the morning I saw Mr. Williams; he was mounted on a camel, as we had all been the first day, and had been riding with the drove about three hours; I hobbled along towards him; his camel stopped, and I was enabled to take him by the hand; he was still entirely naked; his skin had been scorched off; his whole body as well as his face was so excessively inflamed and swelled that I only knew him by his voice, which was very feeble. He told me he had been obliged to sleep naked in the open air every night; that his life was fast wasting away amidst the most dreadful torments; that he could not live one day more in such misery; that his mistress had taken pity on him, and anointed his body that morning with butter or grease; but, said he, "I cannot live; should you ever get clear from this dreadful place, and be restored to your country, tell my dear wife that my last breath was spent in prayers for her happiness:" he could say no more; tears and sobs choked his utterance. His master arrived at this time, and drove on his camel, and I could only say to him, "God Almighty bless you," as I took a last look at him, and, while contemplating his extreme distress, forgot for a moment my own misery. His camel was large, and moved forward with very heavy motions: as he went from me I could see the inside of his legs and thighs; they hung in strings of torn and chafed flesh; the blood was trickling down the sides of the camel and off his feet. "My God!" I cried, "suffer us not to live longer in such tortures."

I had stopped about fifteen minutes, and my master's camels had gained a great distance from me, so that I was obliged to run that I might come up with them. My mind was so shocked with the distresses of Mr. Williams, that I thought it would be impious for me to complain, though the sharp stones continued to enter my sore feet at every step. My master saw me, and stopped the drove for me to come up: when I got near him he threatened me, shaking his stick over my head to let me know what I had to expect if I dared to commit another fault. He then rode off, ordering me and Hogan to

drive the camels on as fast as we could. About an hour afterwards he came near us, and beckoned to me to come to him, which I did. A tall old man, nearly as black as a negro, one of the most ill-looking and disgusting I had yet seen, soon joined my master, with two young men, whom I found afterwards were his sons—they were also joined by a number more on camels, and well armed.



After some time bartering about me, I was given to the old man, whose features showed every sign of the deepest rooted malignity in his disposition. "And is this my master?" thought I. "Great God! defend me from his

cruelty!" He began to go on; he was on foot, so were his two sons; but they walked faster than the camels, and the old man kept snarling at me in the most surly manner, to make me keep up. I tried my very best, as I was extremely anxious to please him, if such a thing were possible, knowing the old adage of "the devil is good when he is pleased," was correct, when applied to human beings; but I could not go fast enough for him; so after he had growled and kept on a considerable time, finding I could not keep up with him, he came behind me and thrust me forward with hard blows repeatedly applied to my exposed back, with a stout stick he had in his hand.

Smarting and staggering under my wounds, I made the greatest efforts to get on, but one of his still more inhuman sons (as I then thought him) gave me a double-barrelled gun to carry, with his powder horn and other accoutrements. They felt very heavy, yet after I had taken them the old man did not again strike me, but went on towards the place where he meant to pitch his tent, leaving me to follow on as well as I could.

The face of the desert now appeared as smooth as the surface of the ocean when unruffled by winds or tempests. Camels could be seen in every direction as soon as they appeared above the horizon, so that there was no difficulty in knowing which way to go, and I took care to keep sight of my new master's drove until I reached the valley, in which he had pitched his tent. I was broiling under the sun, and toiling along with my load, which weighed me down to the earth, and should have lain down despairing, had I not seen Mr. Williams in a still worse plight than myself.

Having come near the tent about four p.m., they took the load from me and bade me lie down in the shade of the tent. I then begged for water, but could get none. The time now came on for prayers, and after the old man and his sons had performed this ceremony very devoutly they went away. I was in so much pain I could scarcely contain myself, and my thirst was more painful than it had yet been. I tried to soften the hearts of the women to get me a little water, but they only laughed and spit at me; and, to increase my distresses as much as they could, drove me away from the shade of the tent, so that I was forced to remain in the scorching sun for the remainder of this long day.

A little after sunset my old and young masters returned; they were joined by all the men that were near, to the number of from twenty to thirty, and went through their religious ceremonies in a very solemn manner, in which the women and little children did not join them. Soon after this was over Clark came in with the camels and joined me. It would have been pleasant for us to be together, but his situation was such that it made my heart ache still worse than it did before; he was nearly without a skin, every part of his body exposed, his flesh excessively mangled, burnt, and inflamed.

"I am glad to see you once more, sir," said Clark, "for I cannot live through the coming night, and now beg of you, if you ever get to our country again, to tell my brothers and sisters how I perished."

I comforted him all I could, and assured him he would not die immediately;

that the nourishment we now had, though very little, was sufficient to keep us alive for a considerable time, and that though our skins were roasted off and our flesh inflamed, we were yet alive, without any signs of putrifaction on our bodies; and I had great hopes we should all be carried, in a few days, from this desert to where we might get some food to nourish us, and as I had learned a little of the language of these people (or savages), I would keep trying to persuade them that if they would carry us up the Moorish dominions, I should be able to pay them a great ransom for all the crew; for an old man had told me that as soon as it should rain, they would journey to the N.E., and sell us.

The night came on; cold damp winds succeeded to the heat of the day, and I begged of my old master to be permitted to go under the corner of his tent (for it was a large one), and he seemed willing, pointing out a place for us to lie down in; but the women would not consent, and we remained outside until the men had milked the camels. They then gave us a good drink of milk, nearly a quart each, and after the women were asleep, one of my young masters, named Omar (the same that made me carry his gun the preceding day to keep his father from beating me) took pity on our distresses, and came and made us creep under one corner of the tent without waking the women, where some soft sand served us for a bed, and the tent kept off the cold air from us, and here we slept soundly until morning. As soon as the women awoke and found us under the tent, they were for thrusting us out with blows, but I pretended to be asleep, and the old man looking on us seemed somewhat concerned, fearing (as I thought) he might lose his property. He told his women to let us alone, and as he was absolute, they were forced to obey him, though with every appearance of reluctance.

After they had milked the camels, and took a drink themselves, they gave us what remained, that is to say, nearly a pint between us. They did not move forward this day, and suffered us to remain under the corner of the tent, in the shade, all the while and the next night, and even gave us a piece of a skin to cover us with in part, and keep off the night wind. They gave us a good drink of milk when they drank themselves on the second night, and Omar had given us about a pint of water each in the middle of the day, so that the inflammation seemed to have subsided, in a great degree, from our bodies and feet.

This attention, together with the two good nights' rest, revived us very much—these were the 14th and 15th days of September. I had not seen any of my unfortunate shipmates except Clark, and did not know where they were during the day we remained still. The camels were driven off early in the morning by a negro slave, and two of the small boys, and did not return until late in the night—they went out to the east to find shrubs for them to feed on. Clark was obliged near night to go out and pull up some thorn bush shrubs and roots to make a fire with.

At the return of the camels, the negro slave (who was a stout fellow, named Boireck) seated himself by the fire, stretching out his legs on each side

of it, and seeing us under the tent, thought to drive us out: but as he was not permitted by our old master, he contented himself by pointing at us and making comparisons; then sneeringly addressing me by the name of Rais, or chief, would set up a loud laugh, which, with the waggery he displayed in his remarks on us, kept the whole family and several strangers who had assembled on the occasion, in a constant roar of laughter until midnight, the hour for milking the camels. He would poke our sore flesh with a sharp stick, to make sport, and show the Arabs what miserable beings we were, who could not even bear the rays of the sun (the image of God, as they term it,) to shine upon us.

Being tormented in this manner, my companion, Clark, could scarcely contain his wrath. "It was bad enough," he said, "to be reduced to slavery by the savage Arabs, to be stripped and skinned alive and mangled, without being obliged to hear the scoffs and derision of a d——d negro slave." I told him I was very glad to find he still had so much spirit left, and could feel as if he wished to revenge an insult; it proved to me that he felt better than he did the preceding night; and I was so much relieved myself; my hopes of being able to endure our tortures and privations increased, adding, "Let the negro laugh if he can take any pleasure in it; I am willing he should do so, even at my expense; he is a poor slave himself, naked and destitute, far from his family and friends, and is only trying to gain the favour of his masters and mistresses by making sport of us, whom he considers as much inferior to himself as he is to them."

Clark could not be reconciled to this mode of mockery and sport, but the negro kept it up as long as we remained with his master every night, and always had plenty of spectators to admire his wit and laugh at his tricks and buffoonery. This reminded me of the story of Samson, when the Philistines wished to make sport with him; he was blind, and they supposed him harmless, but he became so indignant that he was willing to suffer death to be revenged of them; the difference was, he had strength to execute his will—we had not.

From the 15th to the 18th we journeyed every day to the S.E., about thirty miles a day, merely to find a few shrubs in the small scattered valleys for the camels, and consequently for the inhabitants to subsist on. As we went on in that direction the valleys became less frequent and very shallow; the few thorn bushes they produced were very dry, and no other shrubs to be found; the camels could not fill their stomachs with the leaves and shrubs, nor with all that they could crop off, though they pulled away the branches as thick as a man's finger. The milk began to fail, and consequently we had to be stinted, so that our allowance was reduced to half a pint a day, and as all the water they had taken from the well was expended, they could give us no more of that precious article.

Belonging to this tribe, there were four mares that were the general property; they were very clear limbed and very lean; they fed them on milk every day, and every one took his turn in giving them as much water every

two days as they would drink. These mares drank up the last of our water on the 19th, nor would my master allow me to drink what little was left in the bowl, not exceeding half a pint, and it was poured out as a drink-offering before the Lord, while they prayed for rain, which indeed they had reason to expect, as the season they knew was approaching when some rain generally falls.

I supposed our distance from the sea, or the well that we had left, to be 300 miles in a direct line, and we feared very much that we should not find water at any other place. The sustenance we received was just sufficient to keep the breath of life in us, but our flesh was less inflamed than in the first days, for we had contrived to lie under a part of the tent at night, and also in the day-time when it was pitched, which was generally the case about two o'clock in the afternoon. We had, however, become so emaciated that we could scarcely stand, and they did not attempt to make me or Clark do any kind of work, except gather a few dry sticks towards evening to light a fire. The swellings had also gone down in some measure from our feet, as there was not substance enough in us to keep up a running sore ; all the moisture in them seemed to dry away, and we could bear the prickings and cuttings of the stones better as we became lighter and more inured to it.

We had endeavoured to find some of the kind of root that was met with near the sea coast, but none could be procured. In every valley we came to, the natives would run about and search under every thorn bush, in hopes of finding some herb, for they were nearly as hungry as ourselves. In some places a small plant was found resembling what we call shepherd's sprout ; they were torn up by them and devoured in an instant. I got one or two but they proved very bitter, and were impregnated in a considerable degree with salt ; these plants were so rare as to be scarcely of any benefit. The natives also found in particular places, a small ground root, whose top showed itself like a single short spear of grass, about three inches above the ground ; they dug it up with a stick. It was of the size of a small walnut, and in shape very much like an onion ; its taste fresh, without any strong flavour ; but it was very difficult to find, and afforded us very little relief, as we could not get more than half a dozen in a whole day's search, and some days none at all.

On the 19th of September, in the morning, the tribe having held a council the night before, at which I could observe my old master was looked up to as a man of superior judgment and influence, they began a route back again towards the sea, and the well near which we were first made slaves ; this convinced me that no fresh water could be procured nearer ; and as the camels were almost dry, I much feared that myself and companions must perish before we could reach it. I had been in the habit every day since I was in the desert of relieving my excessive thirst by the disagreeable expedient before mentioned ; but that resource now failed for want of moisture, nor had anything passed through my body since the day I left the well. We had journeyed for seven and a-half days S.E., and I concluded it would require the same time to return ; but on the 18th we steered N.E., and on the 19th

we took a N.W. direction, and in the course of the day we entered a very small valley, where we found a few little dwarf thorn bushes, not more than two feet high; on these we found some snails, most of which were dead and dry, but I got about a handful that were alive, and, when a fire was kindled, roasted and ate them. Clark did the same, and as we did not receive more than a gill of milk each in twenty-four hours, this nourishment was very serviceable.

On the morning of the 20th we started as soon as it was light, and drove very fast all day. We had no other drink than the camels' urine, which we caught in our hands as they voided it; its taste was bitter, but not salt, and it relieved our fainting spirits. We were forced to keep up with the drove; but in the course of the day found a handful of snails each, which we at night roasted and ate. Our feet, though not swollen, were extremely sore; our bodies and limbs were nearly deprived of skin and flesh, for we continually wasted away, and the little we had on our bones was dried hard and stuck fast to them.

My head had now become accustomed to the heat of the sun, and though it remained uncovered, it did not pain me. Hunger, that had preyed upon my companions to such a degree as to cause them to bite off the flesh from their arms, had not the same effect on me. I was forced, in one instance, to tie the arms of one of my men behind him, in order to prevent his gnawing his own flesh; and, in another instance, two of them having caught one of the boys, a lad about four years of age, out of sight of the tents, were about dashing his brains out with a stone, for the purpose of devouring his flesh, when, luckily, at that instant, I came up and rescued the child, with some difficulty, from their voracity. They were so frantic with hunger, as to insist upon having one meal of his flesh, and then they said they would be willing to die; for they knew that not only themselves, but all the crew would be instantly massacred as soon as the murder should be discovered. I convinced them that it would be more manly to die with hunger, than to become cannibals and eat their own or other human flesh, telling them, at the same time, I did not doubt but our masters would give us sufficient nourishment to keep us alive until they could sell us. On the 20th, we proceeded with much speed towards the N.W., or sea shore; but on the 21st we did not go forward.

This day I met with Mr. Savage, Horace, Hogan, and the cook; their masters' tents were pitched near ours. They were so weak, emaciated, and sore, that they could scarcely stand, and had been carried on the camels for the last few days. I was extremely glad to see them, and spoke to all but Horace, whose master drove me off with a stick one way, and Horace another, yelling most horribly at the same time, and laying it on Horace's back with great fury. I soon returned to our tent, and felt very much dejected. They all thought they could not live another day; there were no snails to be found here, and we had not one drop of milk or water to drink. Horace, Hogan, and the cook were employed in attending their masters's camels, in company with one or two Arabs, who kept flogging them nearly the whole time.

My old master did not employ me or Clark in the same way, because we had two negro slaves to do that work; he was a rich man among them, and owned from sixty to seventy camels; he was also a kind of priest, for every evening he was joined in his devotions by all the old and most of the young men near his tent. They all first washed themselves in sand in place of water; then wrapping themselves up with their strip of cloth, and turning their faces to the east, my old master stepped out before them, and commenced by bowing twice, repeating at each time "*Allah Houakibar;*" then kneeling and bowing his head to the ground twice; then raising himself upon his feet and repeating, "*Hi el Allah Sheda Rahsool Allah,*" bowing himself twice; and again prostrating himself on the earth as many times, then "*Allah Houakibar*" was three times repeated. He was always accompanied in his motions and words by all present who could see him distinctly as he stood before them. He would then make a long prayer, and they recited altogether what I afterwards found to be a chapter in the Koran; and then all joined in chanting or singing some hymn or sacred poetry for a considerable time. This ceremony being finished, they again prostrated themselves with their faces to the earth, and the service concluded.

About the middle of this day two strangers arrived, riding two camels loaded with goods: they came in front of my master's tent, and having made the camels lie down, they dismounted, and seated themselves on the ground opposite the tent, with their faces turned the other way. There were in this valley six tents besides that of my master.

(*To be continued.*)

THE INEQUALITIES OF FORTUNE.

THIS is an abstract subject, my little friends, if you look at it simply as a subject; but the things which the words stand for are things which most of you have doubtless seen and felt, and, I fear, mourned and wondered over. At least many young people are disturbed by the difference between their own lot and that of others, that a few words upon the subject may be useful.

In the first place, little friends, let us accept the facts as they are. The leg of an old bedstead is not so good to bat a ball with as a real bat, broad where the ball is to be hit, and narrow and slender where you are to take hold of it; and if your well-shaped bat is also polished and carved, and marked with your name in gay letters, why, it may not win you the game, but it is prettier to look at and easier to keep.

There are reasons for inequalities of fortune, some of which you can understand, and some you cannot. I will begin with one that you cannot understand, and you must simply take my word for it.

You should not be troubled, because, although you may miss many good clothes, you can always have the best. Character is of more consequence than clothes. If you are a brave, honest, manly boy; if you are polite to your mother, and take good care of your sisters, even if you do tease them a little, as I am confident you do—and not a very little either—if you scorn a meanness, and are not afraid to apologise when you have in a passion said or done a wrong thing; then you may consider yourself extremely well off in the world, although you have no pony, and are rather bashful, and must work when other boys are at play, and your jacket is short-waisted. Every good thing I have mentioned you may possess, whether you are rich or poor; if you have not these things, riches will do you no good; and if you have them, poverty will do you no hurt. A well-bred boy will be liked and favored, and helped on in the world, whether he wear broadcloth or blue overalls. This is not merely what books say, but it is true in life.

Let me tell you a short story to illustrate another reason.

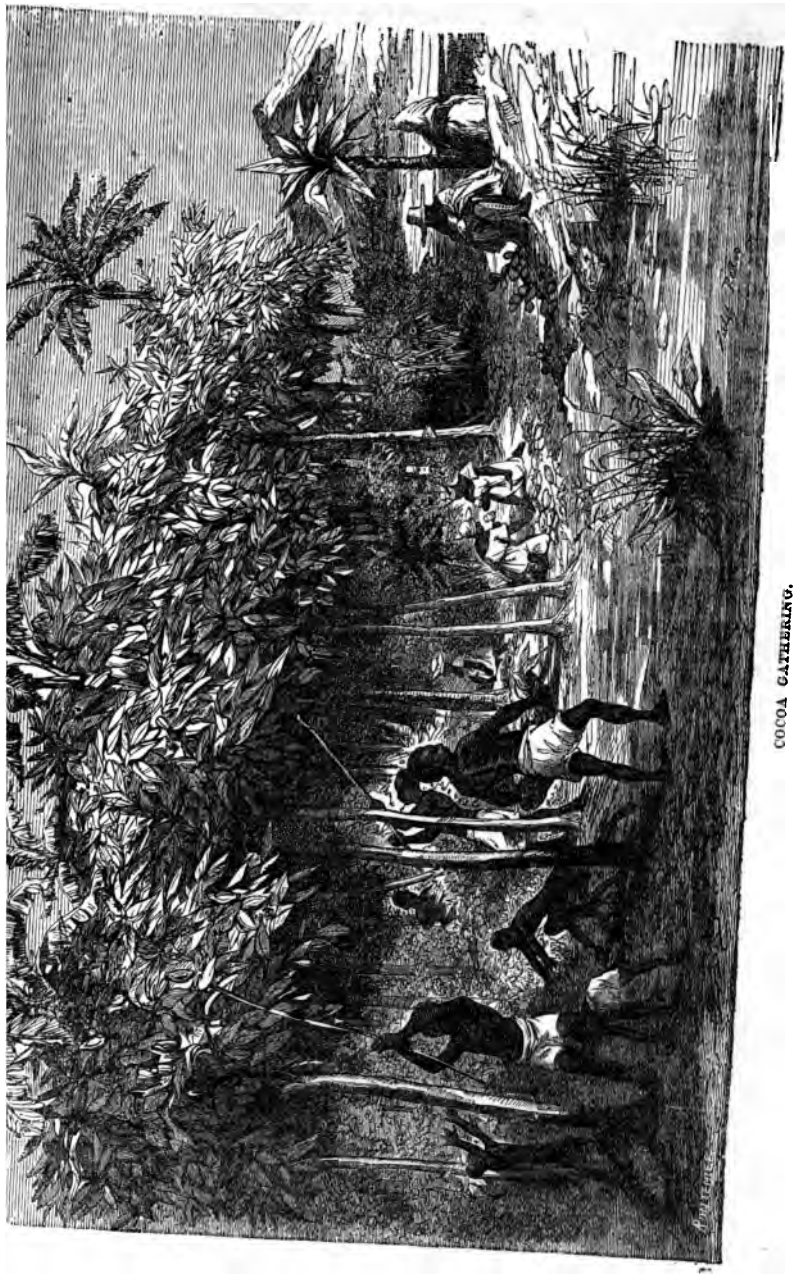
Two boys living next door to each other were playmates and friends. Henry's father was rich, and Robert's father was poor. Robert often used to wonder in his own mind why it was that Henry should have so many fine things and himself so few. When Henry rode by on his pony, Robert had hard work not to feel envious and unhappy. Time passed on, and Robert left his native city. He had been a good boy, and he became a good man, and a learned man, and a rich man. He drove his own horses, and lived in a handsome house, and associated with the best people. One day he was walking along the beach during a short visit at home, and he met a man whom he half recollected, and who half recollected him. "Is this Henry?" "Is this Robert?" And very glad they were to see each other.

"And how goes the world with you?" asked Robert.

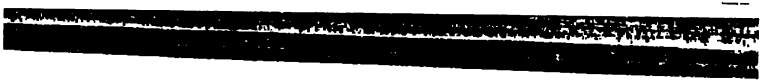
"Miserably enough," replied Henry, sadly. "I am a pauper!"

Robert was shocked, and hardly knew what to say; but Henry went on frankly: "You had nothing but your energies to rely on. You went abroad, and have made yourself a name and a fortune. I had plenty of money. My friends were unwilling to have me leave them. I had no genius to impel me from within, and no necessity to force me from without. I led an aimless useless life. I fell into extravagance from sheer listlessness. I was too lazy to *rush* into anything. I had barely sense enough left to see that my property was disappearing while there was yet a pittance remaining. Then I turned upon my steps, took care of the rest, and am now subsisting upon it, with no hope in this life and but little interest in the next."

Above all things, my little friends, do not be envious. Be as willing to see good traits in your rich companions as in your poor ones.



COCOA GATHERING.



THE COCOA TREE.

THE cocoa tree grows spontaneously in the humid forests of Central America and Mexico, in the districts of Caraccas and Venezuela, from whence it was introduced and cultivated in the Antilles. The plant is an evergreen, and when its flowers fall they give place to a multitude of pods, the surface of which becomes hard and rugged. Each pod contains from twenty-five to forty beans or almonds, symmetrically arranged, and the interior nest which shelters this valuable fruit is itself furnished with a gelatinous and slightly acid pulp, which forms a delicious refreshing beverage of which the Creole ladies are very fond.

Before arriving at maturity, the pods of this delicious fruit pass through many shades of colour, from a delicate green to a deep red sprinkled with yellow spots. The spots indicate that the fruit is ripe, and that the time for gathering it has arrived.

When the beans are removed from their pods they are buried in a pit or trench dug in the earth, and covered by the negroes with fine sand: here they undergo a slight fermentation. They are then removed from the pits, and spread out on reed mats in the sun. After they have become thoroughly dried they are placed in large wooden boxes raised from the ground, and so arranged as to admit of free circulation of air, and in due course they are packed and shipped to Europe.

When the Spaniards arrived in Mexico, in the year 1520, they found that cocoa and chocolate had been in use among the population from time immemorial. The pleasing and healthy aspect of the natives were attributed to the daily use of chocolate, and the Spaniards endeavoured to keep the secret of its existence to themselves, and it was not until 1625 that it became known in Europe, and then its fame soon rapidly extended.

The high estimation in which cocoa was held may be learned from the name bestowed upon it by Linnæus—*theobroma*—from two Greek words, signifying "food of the gods."

Cocoa is peculiarly well adapted for the nourishment of people inhabiting warm countries, as it contains all the essential elements of a complete nutriment in a small compass. It would be quite impossible for these people to put into their stomachs the enormous quantity of solid food which the inhabitants of the colder North can so easily digest. More than one-half of the cocoa bean consists of fatty matter—butter of cocoa; it contains, also, from 17 to 18 per 100 of albumen, 10 or 11 per 100 of starch, and 7 to 8 per 100 of gum; besides these, there is from 2 to 4 per 100 of a substance named *theobromine*, which, in its properties, is analogous to the *theine* of tea and the *cafeine* of coffee.

Manufacture of Chocolate.—The cocoa beans are carefully picked, and cleaned in a dresser or bolter; they are then slightly roasted in the same kind of machine that coffee is roasted in. The beans become reduced in bulk,

while the skin or husk is rendered brittle, so as to be easily removed by fanning.

When the cocoa beans, properly roasted, are withdrawn from the roaster and cooled, they are passed between two rollers armed with iron nails, which break up the husks and facilitates their removal by fanning. The damaged beans are picked out, and the germs removed also. The cocoa beans thus purified, are next completely dried in a stove, then ground in a mill heated by steam, and when the mass is thoroughly softened by heat and friction, which liquifies the butter, sugar is added, little by little, to the paste, so as to maintain it in a semi-fluid state.

The chocolate-mill is a peculiar machine: the cocoa beans pass under conical granite rollers travelling on a polished granite slab laid horizontally; these are followed by thin long knives, which constantly gather up the cocoa paste and distribute it under the rollers. If iron were used, the paste would become black and ill-flavoured.

When the grinding of the paste is nearly completed, certain aromatic substances are added to the finer qualities of chocolate, and intimately mixed with it. Cinnamon and vanilla are the usual aromatics added. The paste is next poured into moulds, and when cold it becomes solid.

What is sold as cocoa is simply the beans roasted and ground to powder cold, to which sugar and starch are added in variable quantities, according to the price at which it is sold.

WHAT TO READ.

ARE you deficient in taste? Read the best English poets, such as Gray and Goldsmith, Pope and Thomson, Cowper and Coleridge, Scott and Wordsworth. Are you deficient in imagination? Read Milton, Akenside, and Burke. Are you deficient in power of reason? Read Chillingworth, and Bacon and Locke. Are you deficient in judgment and good sense in the common affairs of life? Read Franklin. Are you deficient in sensibility? Read Goethe and Mackenzie. Are you deficient in vigour of style? Read Fox and Landor. Are you deficient in political knowledge? Read Montesquieu, Mill, and Brougham. Are you deficient in patriotism? Read Demosthenes, and the "Life of Washington." Are you deficient in conscience? Read some of President Edwards's works.

THE HISTORY OF TIP-TOP,

BY MRS. HARRIET BEECHER STOWE.

UNDER the window of a certain pretty little cottage there grew a great old apple tree, which in the spring had thousands and thousands of lovely pink blossoms on it, and in the autumn had about half as many bright red apples as it had blossoms in the spring.

The nursery of this cottage was a little bower of a room, prepared with mossy-green paper, and curtained with white muslin; and here five little children used to come, in their white nightgowns, to be dressed and have their hair brushed and curled every morning.

First, there were Alice and Mary, bright-eyed laughing little girls, of seven and eight years, and then came stout little Jamie and Charlie, and finally little Puss, whose real name was Ellen, but who was called Puss, and Pussy, and Birdie, and Toddlie, and any other pet name that came to mind.

Now it used to happen, every morning, that the five little heads would be peeping out of the window together, into the flowery boughs of the apple tree; and the reason was this. A pair of robins had built a very pretty, smooth-lined nest in a fork of the limb that came directly under the window, and the building of this nest had been superintended, day by day, by the five pairs of bright eyes of these five children. The robins at first had been rather shy of this inspection; but, as they got better acquainted, they seemed to think no more of the little curly heads in the window, than of the pink blossoms about them, or the daisies and buttercups at the foot of the tree.

All the little hands were forward to help; some threw out flossy bits of cotton,—for which, we grieve to say, Charlie had cut a hole in the crib quilt,—and some threw out bits of thread and yarn, and Allie ravelled out a considerable piece from one of her garters, which she threw out as a contribution; and they exulted in seeing the skill with which the little builders wove everything in. "Little birds, little birds," they would say, "you shall be kept warm, for we have given you cotton out of our crib quilt, and yarn out of our stockings." Nay, so far did this generosity proceed, that Charlie cut a flossy, golden curl from Toddlie's head and threw it out; and when the birds caught it up, the whole flocked laughed to see Toddlie's golden hair figuring in a bird's-nest.

When the little thing was finished, it was so neat, and trim, and workmanlike, that the children all exulted over it, and called it "our nest," and the two robins they called "our birds." But wonderful was the joy when the little eyes, opening one morning, saw in the nest a beautiful pale-green egg; and the joy grew from day to day, for every day there came another egg, and so on till there were five little eggs; and then the oldest girl, Alice, said, "There are five eggs; that makes one for each of us, and each of us will have a little bird by and by;"—at which all the children laughed and jumped for glee.

When the five little eggs were all laid, the mother-bird began to sit on them ; and at any time of day or night, when a little head peeped out of the nursery window, might be seen a round, bright, patient pair of bird's eyes contentedly waiting for the young birds to come. It seemed a long time for the children to wait ; but every day they put some bread and cake from their luncheon on the window sill, so that the birds might have something to eat; but still there she was, patiently watching !

"How long, long, long she waits!" said Jamie, impatiently. "I dont believe she's ever going to hatch."

"O, yes she is !" said grave little Alice. "Jamie, you dont understand about these things ; it takes a long, long time to hatch eggs. Old Sam says his hens sit three weeks ;—only think, almost a month !"

Three weeks looked a long time to the five bright pairs of little watching eyes ; but Jamie said, the eggs were so much smaller than hen's eggs, that it wouldn't take so long to hatch them, he knew. Jamie always thought he knew all about everything, and was so sure of it that he rather took the lead among the children. But one morning, when they pushed their five heads out of the window, the round, patient little birds eyes were gone, and there seemed to be nothing in the nest but a bunch of something hairy.

Upon this they all cried out, "O mamma, *do* come here ! the bird is gone and left her nest !" And when they cried out, they saw five wide little red mouths open in the nest, and saw that the hairy bunch of stuff was indeed the first of five little birds.

"They are dreadful looking things," said Mary ; "I didn't know that little birds began by looking so badly."

"They seem to be all mouth," said Jamie.

"We must feed them," said Charley.

"Here, little birds, here's some gingerbread for you," he said ; and he threw a bit of his gingerbread, which fortunately only hit the nest on the outside, and fell down among the buttercups, where two crickets made a meal of it, and agreed that it was as excellent gingerbread as if old Mother Cricket herself had made it.

"Take care, Charlie," said his mamma ; "we do not know enough to feed young birds. We must leave it to their papa and mamma, who probably started out bright and early in the morning to get breakfast for them."

Sure enough, while they were speaking, back came Mr. and Mrs. Robin, whirring through the green shadows of the apple-tree ; and thereupon all the five little red mouths flew open, and the birds put something into each.

It was great amusement, after this, to watch the daily feeding of the little birds, and to observe how, when not feeding them, the mother sat brooding on the nest, warming them under her soft wings, while the father-bird sat on the tip-top bough of the apple-tree and sang to them. In time they grew and grew, and, instead of a nest full of little red-mouths, there was a nest full of little, fat, speckled robins, with round, bright, cunning eyes, just like their parents ; and the children began to talk about their birds.

"I'm going to give my robin a name," said Mary. "I call him Brown-Eyes."

"And I'll call mine Tip-Top," said Jamie, "because I know he'll be a tip-top bird."

"And I'll call mine Singer," said Alice.

"I 'all mine Toddlie," said little Toddlie, who would not be behindhand in anything that was going on."

"Hurrah for Toddlie!" said Charlie, "hers is the best of all. For my part, I'll call mine Speckle."

So then the birds were all made separate characters by having each a separate name given it. Brown-Eyes, Tip-top, Singer, Toddy, and Speckle made, as they grew bigger, a very crowded nestful of birds.

Now the children had early been taught to say, in a little hymn :—

"Birds in their little nests agree,
And 'tis a shameful sight
When children of one family
Fall out, and chide, and fight;"

and they thought anything really written and printed in a hymn must be true ; therefore they were very much astonished to see, from day to day, that *their* little birds in their nest did *not* agree.

Tip-top was the biggest and strongest bird, and he was always shuffling and crowding the others, and clamouring for the most food ; and when Mrs. Robin came in with a nice bit of anything, Tip-top's red mouth opened so wide, and he was so noisy, that one would think the nest was all his. His mother used to correct him for these gluttonous ways, and sometimes made him wait till all the rest were helped before she gave him a mouthful: but he generally avenged himself in her absence by crowding the others and making the nest generally uncomfortable. Speckle, however, was a bird of spirit, and he used to peck at Tip-top ; so they would sometimes have a regular sparring-match across poor Brown-Eyes, who was a meek, tender little fellow, and would sit winking and blinking in fear while his big brothers quarrelled. As to Toddy and Singer, they turned out to be sister birds, and showed quite a feminine talent for chattering ; they used to scold their badly behaving brothers in a way that made the nest quite lively.

On the whole, Mr. and Mrs. Robin did not find their family circle the peaceable place the poet represents.

"I say," said Tip-top one day to them, "this old nest is a dull, mean crowded hole, and it's quite time some of us were out of it ; just give us lessons in flying, won't you, and let us go."

"My dear boy," said Mother Robin, "we shall teach you to fly as soon as your wings are strong enough."

"You are a very little bird," said his father," and ought to be very good and obedient, and wait patiently till your wing-feathers grow ; and then you can soar away to some purpose."

"Wait for my wing-feathers? Humbug! Tip-top would say, as he sat balancing with his little short tale on the edge of the nest, and looking down through the grass and clover-heads below, and up into the blue clouds above. "Father and mother are slow old birds; keep a fellow back with their confounded notions. If they don't hurry up, I'll take matters into my own claws and be off some day before they know it. Look at those swallows, skimming and diving through the blue air! That's the way I want to do."

"But, dear brother, the way to learn to do that is to be good and obedient while we are little, and wait till our parents think it best for us to begin."

"Shut up your preaching," said Tip-top; "what do you girls know of flying?"

"About as much as *you*," said Speckle. "However, I'm sure I don't care how soon you take yourself off, for you take up more room than all the rest put together."

"You mind yourself Master Speckle, or you'll get something you don't like," said Tip-top, still strutting in a very cavalier sort of way on the edge of the nest, and sticking up his little short tail quite valiantly.

"O my darlings," said the mamma, now fluttering home, "cannot I ever teach you to live in love?"

"It's all Tip-Top's fault," screamed the other birds in a flutter.

"My fault? Of course, everything in this nest that goes wrong is laid to me," said Tip-Top; "and I'll leave it to anybody, now, if I crowd anybody. I've been sitting outside, on the very edge of the nest, and there's Speckle has got my place."

"Who wants your place?" said Speckle. "I'm sure you can come in, if you please."

"My dear boy," said the mother, "do go into the nest and be a good little bird, and then you will be happy."

"That's always the talk," said Tip-Top. "I'm too big for the nest, and I want to see the world. It's full of beautiful things, I know. Now there's the most lovely creature, with bright eyes, that comes under the tree every day, and wants me to come down in the grass and play with her."

"My son, my son, beware! said the frightened mother; "that lovely seeming creature is our dreadful enemy, the cat,—a horrid monster, with teeth and claws."

At this, all the little birds shuddered and cuddled deeper in the nest; only Tip-Top, in his heart disbelieved it. "I'm too old a bird," said he to himself, "to believe *that* story; mother is chaffing me. But I'll show her that I can take care of myself."

So the next morning, after the father and mother were gone, Tip-Top got on the edge of the nest again, and looked over and saw lovely Miss Pussy washing her face among the daisies under the tree, and her hair was sleek and white as the daisies, and her eyes were yellow and beautiful to behold, and she looked up to the tree bewitchingly, and said, "Little birds, little birds, come down; pussy wants to play with you."

"Only look at her!" said Tip-Top; "her eyes are like gold."

"No, don't look," said Singer and Speckle. "She will bewitch you and then eat you up."

"I'd like to see her try to eat me up," said Tip-Top, again balancing his short tail over the nest. "Just as if she would! She's just the nicest, most innocent creature going, and only wants us to have fun. We never do have any fun in this old nest!"

Then the yellow eyes below shot a bewildering light into Tip-Top's eyes and a voice sounded sweet as silver: "Little birds, little birds, come down; Pussy wants to play with you."

"Her paws are as white as velvet," said Tip-Top; "and so soft. I don't believe she has any claws."

"Don't go, brother, don't!" screamed both sisters.

All we know about it is, that a moment after a direful scream was heard from the nursery window. "Oh, mamma, mamma, do come here! Tip-Top's fallen out of the nest, and the cat has got him!"

Away ran Pussy with foolish little Tip-Top in her mouth, and he squeaked dolefully when he felt her sharp teeth. Wicked Miss Pussy had no mind to eat him at once; she meant just as she said, to "play with him." So she ran off to a private place among the currant bushes, while all the little curly heads were scattered up and down looking for her.

Did you ever see a cat play with a bird or a mouse? She sets it down, and seems to go off and leave it; but the moment it makes the first movement to get away,—pounce! she springs on it, and shakes it in her mouth; and so she teases and tantalizes it, till she gets ready to kill and eat it. I can't say why she does it, except that it is a cat's nature; and it is a very bad nature for foolish young robins to get acquainted with.

"O, where is he? where is he? Do find my poor Tip-Top," said Jamie, crying as loud as he could scream. "I'll kill that horrid cat,—I'll kill her!"

Mr. and Mrs. Robin, who had come home meantime, joined their plaintive chirping to the general confusion; and Mrs. Robin's bright eyes soon discovered her poor little son, where Pussy was patting and rolling him from one paw to the other under the currant-bushes; and, settling on the bush above, she called the little folks to the spot by her cries.

Jamie plunged under the bush, and caught the cat with luckless Tip-Top in her month; and, with one or two good thumps, he obliged her to let him go; Tip-Top was not dead, but in a sadly draggled and torn state. Some of his feathers were torn out, and one of his wings was broken, and hung down in a melancholy way.

"O, what *shall* we do for him? He will die. Poor Tip-Top!" said the children.

"Let's put him back into the nest, children," said mamma. "His mother will know best what to do with him."

So a ladder was got, and papa climbed up and put poor Tip-Top safely into

the nest. The cat had shaken all the nonsense well out of him; he was a dreadfully humbled young robin.

The time came at last when all the other birds in the nest learned to fly, and fluttered and flew about everywhere; but poor melancholy Tip-Top was still confined to the nest with a broken wing. Finally, as it became evident that it would be a long time before he could fly, Jamie took him out of the nest, and made a nice little cage for him, and used to feed him every day, and he would hop about and seem tolerably contented; but it was evident that he would be a lame-winged robin all his days.

Jamie's mother told him that Tip-Top's history was an allegory.

"I don't know what you mean, mamma," said Jamie.

"When something in a bird's life is like something in a boy's life, or when a story is similar in its meaning to reality, we call it an allegory. Little boys, when they are about half grown up, sometimes do just as Tip-Top did. They are in a great hurry to get away from home into the great world; and then Temptation comes, with bright eyes and smooth velvet paws, and promises them fun; and they go to bad places; they get to smoking, and then to drinking; and, finally, the bad habit gets them in its teeth and claws, and plays with them as a cat does with a mouse. They try to reform just as your robin tried to get away from the cat; but their bad habits pounce on them and drag them back. And so when the time comes that they want to begin life, they are miserably broken-down creatures, like your broken-winged robin.

"So, Jamie, remember, and don't try to be a man before your time, and let your parents judge for you while you are young; and never believe in any soft white pussy with golden eyes, that comes and wants to tempt you to come down and play with her. If a big boy offers to teach you to smoke a cigar, that is Pussy. If a boy wants you to go into a billiard saloon, that is Pussy. If a boy wants you to learn to drink anything with spirit in it, however sweetened and disguised, then remember, Pussy is there; and Pussy's claws are long, and Pussy's teeth are strong; and if she gives you one shake in your youth, you will be like a broken-winged robin all your days."

BEAUTY AND UTILITY.

"How is it," cried an elegant china vase, that stood empty, "that I, beautiful, elegant, and universally admired as I am, stand empty, while you, a common glazed earthen pot, are filled with costly wine?" "It is because you have a flaw: you leak. Therefore, although all confess your beauty, and yield it due praise, nobody can trust you as they can poor honest me," answered the jar.

THE CASTAWAY.

On either hand is the wide, wide sea,
And high overhead the deep blue sky,
And clinging fast to a broken mast
Is one who searches with eager eye
Over the ocean deep and vast.

The sun climbs up to his highest noon
And gazes down from his dizzy height;
The tall waves dance in his terrible glance,
And sparkle and flash with a dazzling light,
Like the sheen on a burnished lance

Afar in the distance the white sails shine
And seem for a time to draw more near,
Making his heart with a wild throb start,
Then leaving a pang as they disappear,
Like the sting of a poisoned dart.

Down to his bower in the distant west,
Hour after hour the hot sun slopes,
And the shadowy night veils the ling'ring light;
And heavy as lead grow the castaway's hopes
As the day fades out to his sight.

THE SWALLOWS.

A captive soldier pined for home
Upon a foreign shore:
"O summer birds!" he said, "You've come
To greet my eyes once more;
And even to this burning strand
You carry hope to me.
O, bring you from my native land
No tidings o'er the sea?

"Three years some token have I sought,
As you came fluttering by,
Of that dear valley where I thought
In peace to live and die.
'Tis by the stream that runs so clear
Beneath the lilac trees
Our cottage stands—you bring from there
No tidings o'er the seas?

"It may be one of you was born
Beneath my native thatch,
And there you saw my mother mourn,
And keep her weary watch:
She dying thinks, 'He comes at last!'
Then weeps fond tears for me,
Why bring you of her yearnings past
No tidings o'er the sea?

"And is my sister married, say?
And did a joyful throng
Go forth upon her wedding-day,
With greetings and with song?
Have they returned who went from there
To join the fight with me?
Of all those friends why bring you here
No tidings o'er the sea?

"Perhaps their corpses strew the vale;
Some foreign foe has come,
And marches o'er them to assail
And devastate my home.
The new-made bride her hands must wring,
No mother prays for me,
And I in chains! Why do you bring
No tidings o'er the sea?"

WONDERFUL CHARACTERS.

JOHN PHILIPPE BARATIER, THE LITTLE PRODIGY.

THIS remarkable youth was born at Ichwabach, near Nuremberg, in the Margravate of Anspach, on the 19th of January, 1721. His father was a Protestant minister, and the only tutor the boy ever had. At the age of three years, John Baratier had learned to write; at four he spoke Latin with his father, French with his mother, and German with the servant; at seven he understood both Greek and Hebrew; at nine he compiled a Hebrew Dictionary, and a Greek Dictionary of the most difficult words in the Old and New Testament, each consisting of between 300 and 400 quarto pages, with critical remarks, which exhibited remarkable maturity of mind. He also made a transcript in Hebrew of the *Biblia parva* of Opitius, and wrote a Latin translation. At the same time he published, in a German periodical, several learned dissertations, which drew upon him the attention of all the learned men of Germany. In 1732, when he was eleven years of age, he translated into the French tongue, from a Hebrew manuscript of the twelfth century, entitled the "Itinerary of Benjamin of Tudela," with notes and dissertations which fill a volume, which even to this day astonish commentators by the extent of his reading and the force of logic which they suppose in their young author. He next composed, in Latin, a theological work, and engaged in a warm controversy upon a point of criticism with the journalists of Trevoux.

Suddenly he was seized with a strong passion for mathematics. He constructed for himself a case of instruments necessary in the pursuit of these new studies, and, in a few days, by the mere efforts of his own intelligence, he discovered methods of calculation which, for want of books, he could not learn from those who preceded him. He sent essays on astronomy to the Royal Academy of Prussia, and to the Royal Astronomical Society of London. The Academy of Prussia elected him one of its members.

He did not, however, neglect his studies in ecclesiastical antiquities. From 1735 he undertook several dissertations, one of which, relating to the Ancient Chronology of the Popes, was not published until 1740. He also published an abridged "History of the Dispute between Clement XI. and the King of the Two Sicilies," as a supplement to a translation of "Ludwig's Defence of the Sicilian Monarchy." In 1738 he addressed to the Paris Academy of Sciences a project for the discovery of longitudes, based upon the declination and inclination of the magnetic needle, proposing for this purpose a compass he had invented. To this essay he added three propositions: the first upon refractions, the second upon the obliquity of the ecliptic, the third upon the best form of astronomical tables.

The facility of his marvellous intelligence was such, that he mingled without difficulty with these arduous investigations, profound studies upon the lan-

guages and literature of all countries and all ages: on inscriptions, medals, and Egyptian, Chinese, Hindu, Greek and Roman antiquities. He began to occupy himself with the explanation of hieroglyphs, when he died on the 5th of September, 1740, at the age of nineteen.

His disposition was never very serious or melancholy, as might be supposed from the numerous and difficult works that engaged his thoughts; on the contrary, he always retained the gaiety and enjoyments of infancy and youth. Work seemed to him merely play. All his father's efforts were directed to checking and even repressing the ardour of his studies. The father was necessarily an educated man, but his knowledge was much less extended than that of his son. To cultivate this remarkable intellect, he practised a method which he explains in the preface to the translation of the "Travels of Rabbi Benjamin, son of Jona of Tudela." He taught his son the ancient and modern languages, with the aid only of reading in Bibles written in the several idioms, without the assistance of grammars. He did not even put the Greek and Latin classic authors into his hands until he was fit to understand and enjoy them.

The premature death of this young prodigy seems unfortunate; a terrible objection, if not against the excellence of the method of instruction, at least against the extreme ambition of a too precocious and too extensive cultivation of the intellect. Efforts were made, it is true, to prove that the disease which proved fatal to John Baratier could in no way be attributed to excess of work; but in such cases proofs are weighed with difficulty, and it is permitted to doubt. We may be astonished at such a life, admire it perhaps, but not envy it.

SIMPLE OPTICAL AMUSEMENT.

Some photographers are now adopting a simple and successful method of exhibiting *cartes*, and other pictures of similar size, by means of an easily constructed modification of Chadburn's opaque lantern. The picture to be exhibited is placed at the back of a small box of a suitable size and form, and is strongly illuminated by means of one or more lime-lights, magnesium lamps, or other means by which powerful illumination may be obtained. In front of this is placed an object glass, proper care being taken that the direct light from the lamp be not permitted to fall on the lens. If a white screen be erected in front of this "opaque lantern," a magnified image of the small picture in the box will be projected on to it with a degree of brilliance proportionate to the intensity of the illumination. A pleasing effect is caused by having a number of *cartes* fastened side by side on a long slider, by which means a great number of features may be successively presented on the screen by the simple means of pushing forward the slide in a manner similar to the long comic slides of the ordinary magic lantern.

LITTLE THINGS.

HOW much is embodied, young friends, in these two words. Let us see a little what they would teach us, and will you try to bear even with the little things that come in your path as you grow up, and then you need not fear for the greater things? But what do we mean? There are many things which you cannot be, however much you try, while there are many things which you can be by trying. And it happens that the things which lie within your power are the important ones, while the things over which you have no control are of little consequence. For example, you cannot all be good scholars. Some boys try very hard to learn their lessons and keep up with their class, yet cannot do it, because God has given them minds which do not work quickly, or retain firmly. But then, is it a great matter if you are not good scholars? A dull boy may do just as much good in the world and be as happy as a bright one. There are very learned persons whom no one loves, and there are persons of very moderate abilities whom all the world thinks charming. What is required of the dull scholar is, to do the best that he can do. It cannot be expected that he will do as well as another boy who has a quicker grasp and a stronger intellect than he. What you all can do, what you all ought to do, is this :—

See that you are as little disagreeable as possible to those with whom you associate.

This seems a very simple thing, does it not? but read these words over again, for they contain one of the first requirements both of Christianity and politeness. It is of great importance now, and it is becoming more important every day of your life; for if, while you are young, you allow yourselves to be disagreeable, you will become so fixed in the bad habit, that by and by you will not be able to help yourself. You will be unpleasant, however much you wish to be attractive. Now, for one or two ways in which you may prevent yourselves from being disagreeable. Suppose some mischief has been done in school. The teachers wishes to find out who was the perpetrator. He tells the whole story of what has happened, and bids the guilty one report himself after school, or perhaps he only expresses his regret that any of his scholars should be concerned in such doings. Now, here is the opportunity for you to practise the art of not being disagreeable. Do not cast your eyes about, here, there, and everywhere, to see who is the guilty one. You have not been appointed a police officer, and discovery is not your business. Or, if you happen to see anyone with downcast eyes or blushing cheeks, or any apparent signs of guilt, see that you do not increase his embarrassment by staring at him. It is quite possibe that he is entirely innocent, and that the real culprit sits in his seat as bold as a lion, and shows no change of countenance. Many persons are so organised that they blush without any direct personal cause. The innocent pupil, by his lively imagination, may feel the shame of the guilt and the fear of detection more keenly than the true mischief-maker; or he may blush simply because, being nervous and agitated, the thought comes into his mind, "Now, if

I *should* blush, they will all think I am the one;" and, with that unlucky thought, up comes the torturing blood into his unresisting cheek, and makes him very miserable. Your young eyes cannot always detect guilt or innocence by outward signs, but you can greatly increase your schoolfellow's embarrassment by fastening your gaze upon him. Do it not—as you value the character of a high mind, do it not. Obey, rather, the command of Solomon, and "let thine eyes look right on, and let thine eye-lids look straight before thee;" but look not at the discomfiture of thy friend. Not only in the school-room, but everywhere and at all times, make it a law of your life not to look in any direction in which your looking will cause embarrassment, unless you are officially employed to detect crime or fault. No person of delicacy ever wishes to see in another that which another does not wish him to see, and if that one incautiously or involuntarily reveals what he wishes to hide, the first will appear to take no notice of it.

Of course there are a great many cases in which this principle can be brought into play. Your schoolfellow or friend may be awkward through shyness, and make blunders. You may sometimes come upon them suddenly when they are not prepared to see you, or some person may say to them something which shall wound them. A thousand causes may excite in them feelings which they do not wish to show, but the example given will suffice to make you understand what is meant.

Again: Never ask your friend a question which he may not wish to answer—this is a piece of inquisitiveness very common, alas! And if you have been so truly unfortunate as to stumble upon an unwelcome question, stumble away from it as fast as possible. Do anything rather than permit yourself to insist upon a question which your friend's hesitation has shown you to be an improper one. Be sure, in the first place, that your heart is right, and then your tongue will not often be wrong. Do not desire to know what your friend does not wish you to know. Take it rather for granted that he will tell you of his own accord what he desires you to be informed of. Let us take an instance or two. When Charlotte Bronte was beginning to write books, she visited a very intimate old school friend. This friend suspected that she and her sisters wrote for magazines; but as they never said a word to her about it, she did not mention the subject. The proofs of one of her books were forwarded to her while she was on that visit, and she occasionally sat at the same table with her friend correcting them, and yet neither of them alluded to the matter. Another instance occurs to us in the "The Wide, Wide World,"—a book which perhaps some of our young readers may have read. Ellen Montgomery is befriended while she is shopping by an old gentleman, who afterwards makes her little gifts, and does many kind services. Ellen is very anxious to find out his name, but her mamma says No: since he has not told her his name, and evidently does not care to have her know it, it would be very ill-bred to attempt to find it out.

It is more often than not idle curiosity which prompts us to pry into things we ought not, and if we suffer that idle curiosity to prevail, it is impossible to predict the harm that will follow. Yet, sad as it is, there are persons who really

seem to pride themselves on their skill in *finding out* things which they are desired not to know; and to those who have so degrading an ambition, a good deal of skill is too easily acquired in the business. Where you are tolerably certain that a direct question would not be answered, you may think you can put two or three roundabout ones; or if you think your friend is too wary to answer as you wish, you can ask a younger brother or sister, or some one who is less on his guard or less skilful at parrying impertinent inquiries, and so perhaps extract the secret—thus entrapping others into the meanness and disgrace which it should rather have been your endeavour to warn them from exhibiting. Remember, while you are thus gratifying your curiosity, you are destroying or exhibiting the destruction of all delicacy of feeling; you are developing vulgarity and narrow-mindedness, and are rapidly becoming disagreeable and disliked to an extent which probably you little suspect. So far from pluming yourself on your shrewdness in making such discoveries, you ought to be ashamed even of wishing to make them. It is far better to be a dull scholar than to be bright, and use your brightness for unlawful purposes. It is better to be well-bred than well-read, careful and mindful of the feelings of others than quick at figures; to fail in spelling than to fail in politeness. If you can be both a good scholar and a pleasant companion, free from those evils on which we have dwelt, and you may be so, by all means be so, and the brighter the better; but if you will persist in being disagreeable; if you will not take pains to be agreeable, you might just as well be a dunce. All your scholarship will only make your ill-manners more conspicuous, and your company more unwelcome.

You who read these pages, perhaps, do not need to be reminded of these "little things." You are so frank and affable, one can hardly think you would ever be willingly anything else. But we are all likely to err; at any rate, these suggestions will do no harm. They will bear reading carefully over; to be constantly thought of and practised; and the result will be the realisation of that great command, "To love your neighbour as yourself."

HOW COLUMBUS LOOKED.

THE personal appearance of Columbus was not a bad index of his character. His general air expressed the authority which he knew so well how to exercise. His light grey eyes kindled easily at subjects of interest. He was tall and well made. His complexion was fair and freckled, and inclined to ruddy. Trouble soon turned his light grey hair, and at thirty years of age it was quite white. Moderate in food and simple in dress, temperate in language, bearing himself with courteous and gentle gravity, religious without being a formalist, repressing his irritable temper with a lofty piety, he was the model of a Christian gentleman. The devout reference of his successes to divine favour, with which he concludes the report of his first voyage to the sovereigns of Castile, is highly characteristic of the man.

MY LECTURE ON ELECTRICITY.

(*Concluded from page* 333.)

HAVING disposed of the first part of my lecture—frictional electricity, and the experiments with that scientific toy, the electrical machine—I came to the more important, and in these days indispensable, galvanic battery. How our fathers jogged on without it is a puzzle. The millions of miles of wire stretching all over the world, and animated by the electric current, like the nerves in the human body, convey instantaneonsly perception and knowledge from the extremities to the various centres of intelligence, to be again diffused to the remotest parts. Stop this current; the world would still be the world, but it would be like a body in which the heart has ceased to beat.

Chemical or voltaic electricity, commonly called galvanism, like many other important facts in science, was found out by accident. Of course I repeated the well-known story of Professor Galvani and the frogs; how madame, being ill, she would have some delicious and strengthening frog soup. Several wry faces. What! not like frog soup? You do not know what it is. There are many things we despise just because we have not tried them. What can be more savoury than a delicate hedgehog nicely roasted, or a dish of stewed moles? Boiled nettles are very good when they are young, and dandelions are better than spinach. Well, the frog soup was being prepared on a table where stood an electric machine, and either the professor, his wife, or one of his pupils—I cannot make out which, accounts vary so—was cutting up a frog, when, every time it was touched with the knife, it moved about as if it were alive. It was supposed that the knife had become electrified by being near the machine. So Galvani thought; but he was not altogether consistent, for he wrote a treatise to prove that the electricity was in the animal, and not in the metal, and made nothing of his discovery, in consequence of not following it up in the right direction. If the frog was on a pewter plate, such as were common in those days, and a little salt had been sprinkled on it and become wet, there might have been galvanic action when the knife was applied, without having recourse to the electrical machine.

It was left to Volta to complete the discovery in which Galvani failed; he invented the voltaic pile, plates of zinc and silver piled one upon another alternately, with wet cloths between each, and was the real invent or of voltaic electricity, but as Volta's pile or battery was chiefly used to illustrate Galvani's experiment with the frog, it was called the galvanic battery. This was in the year 1800, since then, galvanism—to use the common term, has made giant strides.

There are various kinds of batteries; Smee's consists of a plate of silver covered with a thin coat of platinum, placed between two plates of zinc; amalgamated or covered with mercury, these are placed in diluted sulphuric acid, when these plates are connected, chemical action takes place. The

sulphuric acid combines with zinc, and forms sulphate of zinc, but it cannot do this without taking oxygen out of the water. Pure water always consists of eight parts of oxygen to one of hydrogen, therefore when oxygen is taken out of the water, the corresponding quantity of hydrogen is set free, you may hear it fizzing in its endeavours to escape.

But how does this chemical action produce electricity? this is not very easy to explain; but if it is the power or attraction of electricity which holds all things together, there is in a drop of water a certain amount of electricity, which combines the hydrogen and oxygen into that drop of water; if we can separate these two gases, that electricity will be set free. When we breathe, the lungs take oxygen out of the air, and this separation is attended with heat, that heat which gives warmth to the body. And electricity produces heat as I will show you. It is passing through these wires without giving any indication of its existence, it can neither be seen nor felt. I might have all the electricity of a thunder storm here without being aware of it.

There is, however, this difference between the electricity in a thunder storm and voltaic electricity, that the former is very intense, or what may be called highly excitable, it will leave one conductor for another at some distance, if only it can find a shorter or better passage to the earth. But voltaic electricity, less intense but greater in quantity, will traverse a wire a thousand miles long rather than take a short cut by another wire nearly touching, but not actually in contact. And here it is passing along unperceived, because these wires are able to contain it, but if we introduce, between the ends of the copper wires, a thin iron wire—and iron is not so good a conductor as copper—the iron wire is unable to convey the whole current, the excess produces heat, the wire becomes red hot, and at length burns until it is entirely consumed. The rustics were able to appreciate this simple experiment, I therefore repeated it, walking to the other end of the room, wires in hand, and burning the fingers of the sceptical to prove that there was no illusion.

When all were satisfied, I connected the wires with the electro-magnet, and explained how soft iron becomes magnetic by an electric current circulating through the copper wire, every turn of the wire adding to the power. The electro-magnet I used would carry one hundred weight or more, suspended from the keeper, but it was well I was contented with a twenty-eight pound weight, as when I disconnected the wire, to show that the power depended on the battery, the rope gave way that should have arrested the weight in its fall, and it came down with a heavy thud upon the table, making all my apparatus dance.

To show the rapidity with which the circuit can be completed and cut off, I introduced the galvanic coil,* where the keeper is a spring attracted—when the circuit is complete—to the soft iron core, but immediately it is so attracted, it ceases to touch the point which makes the circuit, the electric current is stopped, the iron is no longer magnetic, the spring returns to its place, and comes in contact with the point, the circuit is again complete, and the spring

* For directions how to make the galvanic coil, see page 371.

attracted to the iron, and so on. So rapidly do these changes take place, that the eye is unable to follow them, and the ear can only discern an incessant hum produced by the vibrations, which are estimated at about two hundred in a second. Some of the company who had never been galvanized were allowed to try the effect. I found they could take a strong dose, and were pleased with it, though on being questioned they compared it with cramp, pins and needles, and such like disagreeable sensations.

The process of blasting rocks was illustrated by igniting guncotton and gunpowder, and discharging a mortar out of doors, to which my assistant carried the wires. The report was deafening; there is nothing like a mortar for making a noise. When I was a boy, I had great respect for the park guns, which are fired off opposite the Horse Guards on royal birthdays and great occasions, till one day upon close inspection I found that they were only small mortars fixed upon blocks of wood, and from their appearance I should imagine were stowed away in a lumber room when not wanted. The charges of gunpowder fired under water were quite successful, not so violent in their effects as at the rehearsal, only just so much commotion and splashing as to contribute to the excitement without doing any harm.

The electric telegraph is the most valuable application of electricity. By its means friends most distant are enabled to communicate instantaneously with one another, merchants and politicians receive the latest intelligence, and every important newspaper has news laid on by the electric wires. It is a remarkable illustration of the progress and enterprise of the present day, that a newspaper should have its own telegraph office, and then with news from all parts of Europe up to the time of going to press, be sold for a penny, but there would have been no penny papers had not printing machines been invented just at the right time, which print ten thousand copies an hour. Ninety years ago M. Lesage suggested the possibility of sending signals through wires by means of electricity, but as a wire was wanted for every signal, twenty-six wires in order to send a message, electric telegraphy was then impracticable.

Various plans were proposed up to the year 1837, when Professor Wheatstone and Mr. Cooke brought out the needle telegraph, which is still in general use. By passing the wire from the battery over a magnetic needle, I showed that the needle has a tendency to place itself at right angles to the electric current, being deflected or turned to the right or to the left according to the direction of the current. The needle therefore can be made to move either to the right or to the left by reversing the current, which is done by a simple mechanical contrivance. This is the principle of the electric telegraph, only in the working telegraph we have a coil of wire to increase the power. This is very necessary when a battery has to work a needle at a distant station. The needle is slightly heavier at the lower end, so that when not in use it may remain in a perpendicular position. There are also two stops to prevent the needle turning round or vibrating. All that is now necessary is to establish a code of signals, so many beats to the right or left for each letter of the

alphabet. This code is much shortened when two needles are used. Only one wire is required for each needle. Here we have two to complete the circuit; but in long distances there is a great saving in making one wire do the work of two. At each station a plate of copper is sunk in the earth connected with the batteries and instruments, and the earth completes the circuit. The earth is therefore the medium for the return of many currents of electricity, and it is said they never get mixed. But we ought rather to consider the earth as a bank, or common receptacle of electricity, and what is paid in at one station may be immediately drawn out at the station in correspondence, no matter how distant.

When the electric telegraph first came into operation, there were many absurd ideas about it. Scientific men, of course, understood it; but ordinary mortals like ourselves wondered how the message was sent along the wires. Some thought that a letter folded and sealed might be blown along in some incomprehensible manner; and if a letter, why not a parcel? The old lady who directed a pair of boots to her son in India, and then hung them on the telegraph wires, was a fair specimen; her faith in the telegraph was undiminished, when next morning she found that the boots had disappeared, and that dear John or Thomas had sent an old pair back to be mended. Another old lady—these stories are always told of elderly ladies—left her umbrella at the station from which she set out! the guard of the train happened to notice this, and quietly took charge of it, knowing that an inquiry would be made for it. At the next stopping station he walked by the carriage window where sat the old lady, and, as he expected, she called to him: "Guard, I have left my umbrella behind; what is to be done?" "Telegraph, ma'am." "Will you please—?" "Yes, ma'am; I will see to it." When she arrived at her destination, she was agreeably surprised to see the umbrella suspended from the telegraph wires; the guard had alighted first, and hung it there, and now he pointed to it. "Here first, ma'am." "La! what a wonderful thing the telegraph is!"

Now, I will give you my first experience of the telegraph. Like the old lady, I had left something behind, a small parcel, which I did not care to lose. I soon missed it, and at the first station we came to, I left directions, written in pencil, to be forwarded to the station-master at S——, about sending the parcel by the following train. I went to inquire for my parcel in the afternoon, but though two or three trains had arrived from S——, my parcel had not come.

The next thing to be done, was to telegraph to S——. I screwed up the message into the regulation twenty words, and handed it to the clerk. He set down before one of these instruments like a clock without hours, and moved the handles. In a moment he was up again and said "say 'wait' talking at T——." The waiting was by no means tedious, for the telegraph clerk was conversational, and a man of good parts and easy manners; in the early days of the telegraph, it was not anybody who could manipulate it. He mentioned a rather sensational circumstance which had occurred a few days

previously. "One day last week" he said, "a very singular message was brought, it was only a few words, but it was a matter of life and death, it was to stay an execution at M——. I forwarded it immediately, glad to give a poor fellow a chance for his life, and thought of the many stories of a reprieve arriving express when the condemned was already on the scaffold. A few minutes more, and another message was brought: 'Let the execution proceed.' Well, I said to myself, this is a serious business, what if there should be some dreadful mistake, and these telegraph wires be guilty of murder, I felt both hot and cold, and shuddered at the very idea. After a moment's reflection, I took the message to the Secretary. He was perplexed. The message was signed, but then could we be certain that the signature was genuine. To make sure our secretary took a cab to Downing Street, saw the Home Secretary, found that all was correct, the message was forwarded, and the man executed, hung by electric telegraph."

Just as the story was ended a bell rang. The clerk sat down and began to manipulate. "I am now talking to S——," he said. Then after a few moments —"You wish for an answer?" I replied that I did. We waited a short time, and the bell rang again. The clerk read off the message from S——: "Sent by express." "Oh," said our friend the clerk; "it is coming in." There was a heavy roll overhead, for the telegraph office was below in one of the arches under the line. I rushed up stairs to the cloak-room just in time to see a porter coming from the train with my valuable parcel under his arm.

The telegraph alarum is now gone out of use. The bell required a separate wire, and it is found that the noise the needles make in striking the stops is sufficient to call the attention of the telegraph clerk. Besides these needle telegraphs there are some which print the message, and others only used for train signals, worked by electro-magnets. On the metropolitan line only two signals are used—"Train on the line," and "Line clear." The clerk at the station to which the signal "Train on the line" is sent, is able to lock the signal, and it continues so till the train has passed. The signal is then unlocked and changed to "Line clear." Thus only one train at a time is allowed on the same line between any two stations.

Having disposed of the telegraph, but little time was left for the other applications of electricity. The electric light was not forgotten, I had the good fortune last summer to witness the effect of five electric lights thrown at once upon the fountain of Neptune at Versailles. It was a *spectacle*, to use the appropriate French term, indescribably grand and never to be forgotten, varied too, but scarcely improved, by the introduction of coloured fires. Electrotyping, electric clocks, and electric machines were but briefly mentioned. As a motive power electricity does not seem likely to effect much, the power obtained being small compared with the cost of a large battery; but a Frenchman, M. Lenoir, has made use of the electric spark to explode common coal gas in a cylinder, the explosion of the gas acts upon a piston in the same manner as high pressure steam, and without the necessity of furnace or boiler; all that is required is a supply of gas and a small galvanic battery.

In "my lecture," I did not aim at more than a superficial glance at the wonders and appliances of electricity, may I hope that I have said enough to awaken the interest of some, and incite them to the study of a science as yet in its infancy, but which promises, perhaps more than any other, to contribute to the benefit of mankind.

THE BATTLE OF LEPANTO.

(Concluded from page 329.*)*

THE left wing of the confederates, commanded by Barberigo, had been sorely pressed by the Turks, as we have seen, at the beginning of the fight, Barberigo himself had been mortally wounded. His line had been turned, several of his galleys had been sunk; but the Venetians gathered courage from despair. By incredible efforts they succeeded in beating off their enemies. They became the assailants in their turn. Sword in hand, they carried one vessel after another. The Capuchin, with uplifted crucifix, was seen to head the attack, and to lead the boarders to the assault. The Christian galley slaves, in some instances, broke their fetters, and joined their countrymen against their masters. Fortunately, the vessel of Mehemet Siroco, the Moslem admiral, was sunk; and though extricated from the water himself, it was only to perish by the sword of his conqueror, Juan Contarini. The Venetian could find no mercy for the Turk.

The fall of their commander gave the final blow to his followers. Without further attempt to prolong the fight, they fled before the avenging swords of the Venetians. Those nearest the land endeavoured to escape by running their vessels ashore, where they abandoned them as prizes to the Christians. Yet many of the fugitives, before gaining the shore, perished miserably in the waves. Barberigo, the Venetian admiral, who was still lingering in agony, heard the tidings of the enemy's defeat, and exclaiming, "I die contented," he breathed his last.

Meanwhile, the combat had been going forward in the centre between the two Commanders-in-chief—Don John and Ali Pasha—whose galleys blazed with an incessant fire of artillery and musketry, that enveloped them like "a martyr's robe of flames." Both parties fought with equal spirit, though not with equal fortune. Twice the Spaniards had boarded their enemy, and both times they had been repulsed with loss. Still their superiority in the use of their fire-arms would have given them a decided advantage over their opponents if the loss thus inflicted had not been speedily repaired by reinforcements.

More than once the contest between the two chieftains was interrupted by the arrival of others to take part in the fray. They soon, however, returned to one another, as if unwilling to waste their strength on a meaner enemy. Through the whole of the engagement both commanders exposed themselves

to danger as freely as any common soldiers. Even Philip must have admitted that in such a contest it would have been difficult for his brother to find, with honour, a place of safety. Don John received a wound in the foot. It was a slight one, however, and he would not allow it to be attended to till the action was over.

At length the men were mustered, and a third time the trumpets sounded to the assault. It was more successful than those preceding. The Spaniards threw themselves boldly into the Turkish galley. They were met by the *Janissaries* with the same spirit as before. Ali Pasha led them on. Unfortunately, at this moment he was struck by a musket-ball in the head, and stretched senseless on the gangway. His men fought worthily of their ancient renown; but they missed the accustomed voice of their commander. After a short but ineffectual struggle against the fiery impetuosity of the Spaniards, they were overpowered, and threw down their arms. The decks were loaded with the bodies of the dead and the dying. Beneath these was discovered the Turkish Commander-in-chief, sorely wounded, but perhaps not mortally. He was drawn forth by some Castilian soldiers, who, recognising his person, would at once have despatched him; but the wounded chief, having rallied from the first effects of his blow, had presence of mind enough to divert them from their purpose by pointing out the place below where he had deposited his money and jewels, and they hastened to profit by the disclosure before the treasure should fall into the hands of their comrades.

Ali was not so successful with another soldier, who came soon after, brandishing his sword, and preparing to plunge it into the body of the prostrate commander. It was in vain that the latter endeavoured to turn the ruffian from his purpose. He was a convict,—one of those galley-slaves whom Don John had caused to be unchained from the oar, and furnished with arms. He could not believe that any treasure would be worth so much to him as the head of the Pasha. Without further hesitation he dealt him a blow, which severed it from his shoulders. Then returning to his galley, he laid the bloody trophy before Don John. But he had miscalculated on his recompense. His commander gazed on it with a look of pity mingled with horror. He may have thought of the generous conduct of Ali to his Christian captives, and have felt that he deserved a better fate. He coldly inquired "Of what use such a present could be to him," and then ordered it to be thrown into the sea. Far from being obeyed, it is said the head was stuck on a pike and raised aloft on board the captive galley. At the same time the banner of the Crescent was pulled down, while that of the Cross ran up in its place proclaimed the downfall of the Pasha.

The sight of the sacred ensign was welcomed by the Christians with a shout of "Victory!" which rose high above the din of battle. The tidings of the death of Ali soon passed from mouth to mouth, giving fresh heart to the confederates, but falling like a knell on the ears of the Moslems. Their confidence was gone. Their fire slackened. Their efforts grew weaker and weaker. They were too far from shore to seek an asylum there, like their comrades on the right. They had no resource but to prolong the combat or to surrender. Most preferred

the latter. Many vessels were carried by boarding, others sunk by the victorious Christians. Before four hours had elapsed, the centre, like the right wing of the Moslems, might be said to be annihilated.

Still the fight was lingering on the right of the confederates, where, it will be remembered, Uluch Ali, the Algerine chief, had profited by Doria's error in extending his line so far as greatly to weaken it. His adversary, attacking it on its most vulnerable quarter, had succeeded, as we have seen, in capturing and destroying several vessels, and would have inflicted still heavier losses on his enemy, had it not been for the seasonable succour received from the Marquis of Santa Cruz. This brave officer, who commanded the reserve, had already been of much service to Don John, when the *Real* was assailed by several Turkish galleys at once, during his combat with Ali Pasha; the Marquis having arrived at this juncture, and beating off the assailants, one of whom he afterwards captured, the Commander-in-chief was enabled to resume his engagement with the Pasha.

No sooner did Santa Cruz learn the critical situation of Doria, than supported by Cardona, General of the Sicilian squadron, he pushed forward to his relief. Dashing into the midst of the *mêlée*, they fell like a thunderbolt on the Algerine galleys. Few attempted to withstand the shock. But in their haste to avoid it, they were encountered by Doria and his Genoese. Thus beset on all sides, Uluch Ali was compelled to abandon his prizes and provide for his own safety by flight. He cut adrift the Maltese *Capitana*, which he had lashed to his stern, and on which three hundred corpses attested the desperate character of her defence. As tidings reached him of the discomfiture of the centre and the death of his commander, he felt that nothing remained but to make the best of his way from the fatal scene of action, and save as many of his own ships as he could. And there were no ships in the Turkish fleet superior to his, or manned by men under more perfect discipline; for they were the famous Corsairs of the Mediterranean, who had been rocked from infancy on its waters.

Throwing out his signals for retreat, the Algerine was soon to be seen at the head of his squadron, standing towards the North, under as much canvas as remained to him after the battle, and urged forward through the deep by the whole strength of his oarsmen. Doria and Santa Cruz followed quickly in his wake, but he was borne on the wings of the wind, and soon distanced his pursuers. Don John, having disposed of his own assailants, was coming to the support of Doria, and now joined in the pursuit of the viceroy. A rocky headland, stretching far into the sea, lay in the path of the fugitive, and his enemies hoped to intercept him there. Some few of his vessels stranded on the rock, but the rest, near forty in number, standing more boldly out to sea, safely doubled the promontory; then quickening their flight, they gradually faded from the horizon, their white sails, the last thing visible, showing in the distance like a flock of Artic sea-fowl on their way to their native homes. The confederates explained the inferior sailing of their own galleys by the circumstance of their rowers, who had been allowed to bear arms in the fight, being crippled by their wounds.

The battle had lasted more than four hours. The sky, which had been almost without a cloud through the day, began now to be overcast, and showed signs of a coming storm. Before seeking a place of shelter for himself and his prizes, Don John reconnoitred the scene of action. He met with several vessels in too damaged a state for further service. These mostly belonging to the enemy, after saving what was of any value on board, he ordered to be burnt. He selected the neighbouring port of Petala, as affording the most secure and accessible harbour for the night. Before he had arrived there, the tempest began to mutter and darkness was on the water. Yet the darkness rendered the more visible the blazing wrecks, which, sending up streams of fire mingled with showers of sparks, looked like volcanoes on the deep.

Long and loud were the congratulations now paid to the young Commander-in-chief by his brave companions-in-arms on the success of the day. The hours passed blithely with officers and men while they recounted one to another their manifold achievements. But feelings of gloom mingled with their gaiety as they gathered tidings of the loss of friends who had bought this victory with their blood.

It was indeed a sanguinary battle, surpassing in this particular any sea-fight of modern times. The loss fell much the heaviest on the enemy. There is the usual discrepancy about numbers; but it may be safe to estimate the Turkish loss at about twenty-four thousand slain, and five thousand prisoners. But what gave most joy to the hearts of the conquerors was the liberation of twelve thousand Christian captives who had been chained to the oar on board the Moslem galleys, and who now came forth with tears streaming down their haggard cheeks to bless their deliverers.

The loss of the allies was comparatively small—less than eight thousand. That it was so much less than that of their enemies may be referred in part to their superiority in the use of fire-arms; in part, also, to their exclusive use of these, instead of employing bows and arrows, weapons much less effective, but on which the Turks, like the other Moslem nations, seem to have greatly relied. Lastly, the Turks were the vanquished party, and in their heavier loss suffered the almost invariable lot of the vanquished.

As to their armada, it may almost be said to have been annihilated. Not more than forty galleys escaped, out of near two hundred and fifty which had entered into the action. One hundred and thirty were taken and divided among the conquerors. The remainder, sunk or burnt, were swallowed up by the waves. To counterbalance all this, the confederates are said to have lost not more than fifteen galleys, though a much larger number doubtless were rendered unfit for service. This disparity affords good evidence of the inferiority of the Turks in the construction of their vessels, as well as in the nautical skill required to manage them. A large amount of booty, in the form of gold, jewels, and brocade, was found on board several of the prizes. The galley of the Commander-in-chief alone is stated to have contained one hundred and seventy thousand gold sequins—a large sum, but not large enough, it seems, to buy off his life.

The losses of the combatants cannot be fairly presented without taking into the account the quality as well as the number of the slain. The number of persons of consideration, both Christians and Moslems, who embarked in the expedition, was very great. The roll of slaughter showed that in the race of glory they gave little heed to their personal safety. The officer second in command among the Venetians, the Commander-in-chief of the Turkish armament, and the Commander of its right wing, all fell in the battle. Many a high-born cavalier closed at Lepanto a long career of honorable service. More than one, on the other hand, dated the commencement of their career from this day. Such was the case with Alexander Farnese, the young Prince of Parma. Though somewhat older than his uncle, John of Austria, difference of birth had placed a wide distance in their conditions, the one filling the post of Commander-in-chief, the other only that of a private adventurer. Yet even so he succeeded in winning great renown by his achievements. The galley in which he sailed was lying, yard-arm to yard-arm, alongside of a Turkish galley, with which it was hotly engaged. In the midst of the action the young Farnese sprang on board of the enemy, and with his stout broad sword hewed down all who opposed him, opening a path into which his comrades poured one after another; and after a short, but murderous contest, he succeeded in carrying the vessel. As Farnese's galley lay just astern of Don John's, the latter could witness the achievement of his nephew, which filled him with an admiration he did not affect to conceal. The intrepidity he displayed on this occasion gave augury of his character in later life, when he succeeded his uncle in command, and surpassed him in military renown.

Another youth was in that sea-fight, who, then humble and unknown, was destined one day to win laurels of a purer and more enviable kind than those which grow on the battle field. This was Cervantes, who, at the age of twenty-four, was serving on board the fleet as a common soldier. He was confined to his bed by a fever; but, notwithstanding the remonstrance of his captain, insisted, on the morning of the action, not only on bearing arms, but on being stationed at the post of danger. And well did he perform his duty there, as was shown by two wounds on the breast, and another in the hand, by which he lost the use of it. Fortunately, it was the left hand. The right yet remained, to record those immortal productions which were to be familar as household words, not only in his own land, but in every quarter of the civilized world.

A fierce storm of thunder and lightning raged for four-and-twenty hours after the battle, during which the fleet rode safely at anchor in the harbour of Petala. It remained there three days longer. Don John profited by the time to visit the different galleys and ascertain their condition. He informed himself of the conduct of the troops, and was liberal of his praises to those who deserved them. With the sick and the wounded he showed the greatest sympathy, endeavouring to alleviate their sufferings, and furnishing them with whatever his galley contained that could minister to their comfort. With so generous and sympathetic a nature, it is not wonderful that he should have established himself in the hearts of his soldiers.

But the proofs of this kindly temper were not confined to his own followers. Among the prisoners were two sons of Ali, the Turkish Commander-in-chief. One was seventeen, the other only thirteen years of age. Thus early had their father desired to initiate them in a profession which, beyond all others opened the way to eminence in Turkey. They were not on board of his galley, and when they were informed of his death, they were inconsolable. To this sorrow was now to be added the doom of slavery.

As they were led into the presence of Don John, the youths prostrated themselves on the deck of his vessel. But raising them up, he affectionately embraced them. He said all he could to console them under their troubles. He caused them to be treated with the consideration due to their rank. His secretary, Juan de Soto, surrendered his quarters to them. They were provided with the richest apparel that could be found among the spoil. Their table was served with the same delicacies as that of the Commander-in-chief; and his gentleman of the chamber showed the same deference to them as to himself. His kindness did not stop with these acts of chivalrous courtesy. He received a letter from their sister Fatima, containing a touching appeal to Don John's humanity, and soliciting the release of her orphan brothers. He had sent a courier to give their friends in Constantinople the assurance of their personal safety; "which" adds the lady, "is held by all this court as an act of great courtesy, *gran gentilezza;* and there is no one here who does not admire the goodness and magnanimity of your Highness." She enforced her petition with a rich present, for which she gracefully apologized, as intended to express her own feelings, though far below his deserts.

The young princes, in the division of the spoil, were assigned to the Pope. But Don John succeeded in obtaining their liberation. Unfortunately, the elder died of a broken heart, it is said, at Naples. The younger was sent home, with three of his attendants, for whom he had an especial regard. Don John declined the present, which he gave to Fatima's brother. In a letter to the Turkish princess, he remarked, that "he had done this, not because he undervalued her beautiful gift, but because it had ever been the habit of his royal ancestors freely to grant favours to those who stood in need of their protection, but not to receive aught by way of recompense."

THE contemplation of distresses softens the mind of men, and makes the heart better. It extinguishes the seeds of envy and ill-will towards mankind, corrects the pride of prosperity, and beats down all that fierceness and insolence which are apt to get into the minds of the daring and fortunate.

HISTORY OF A CARTE DE VISITE.

DEAR MR. EDITOR,

KNOWING you to be tender-hearted, ready to sympathize with the afflicted, and to comfort the sorrowing, I beg you to act as my amanuensis, that I may leave to the world a record of my eventful life. Being faded and worn, you will have to bear with me patiently, and catch my story as I am able to gasp it out. It may teach some of the careless a lesson, and show them that although our number is great and our name legion, the process of our creation is neither uninteresting nor without trouble, and that we should not be despised, trod upon, and maltreated as we are.

We have heard that you human beings are created from dust. You seem to be satisfied with this, and neither trouble yourself about the *kind* of dust, nor the matter from which it is made; therefore I shall go no further into the details of my creation than to say, that I first saw light in the beautiful and extensive manufactory of Herr M. A. Steinbach, Fabricant de Papier, Malmedy, Prussia, as a piece of beautiful white paper. I need not tell you how I was pressed between hot rollers, sized, trimmed, and then laid with four hundred and seventy-nine other sheets maltreated in the same way; nor how we were nailed into a box with nails harder to draw out than the truth from some of the witnesses in an election committee; nor of the long and tedious voyage across the tempestuous ocean, and the narrow escape we had from being thrown overboard in a storm, for all this you can imagine as well as I can describe it.

I first saw light in this country in your most fashionable *Salle Photographique*. After the box I rested within was opened, I was taken from the company of the other four hundred and seventy-nine sheets, pinched, shaken, held up to the light so the cruel artist could see "Steinbach" on my border and then whirled up a winding stair, through rooms light and dark, and terrified and alone, laid down. Presently I observed a huge white pan, filled with some curious substance, neither sweet nor beautiful. I heard the artist say it was albumen, and that hundreds of diminutive chickens were spared the trouble of coming to life, as many matronly hens deprived of the care of an extensive brood, and myriads of worms and flies spared a chase across the field in the mouth of some courageous chick, with a dozen rivals after it full tilt, that this *albumen* might be made on which he was about to let me float as did our sturdy ships upon the sea. I trembled at such a fate, but presently he seized me by my corners, and, with a dexterous move, laid me flat upon the disgusting surface, which convinced me that the eggs of which it was made must have been very near chickens before coming into present hands. Not content with this, he took a rounded rod and gently pressed me down in every place, to give me a thorough dose. He allowed me to remain about five minutes, and, seizing me again, threw me corner-wise over a round bar,

where, sick and fainting, I was allowed to collect my scattered thoughts, while the superfluous albumen scattered down my sides and slipped off my corners into a trough below.

Presently my four hundred and seventy-nine sisters were brought in, treated likewise, and when we were all dry and stiff were again placed together, put in a huge press, and squeezed in a manner so violent that any virtuous female would blush at such treatment; but there was no help for us. Being rather obstreperous and indignant, I succeeded in getting one corner out, which the artist did not discover until when about to leave the room, and then he wickedly remarked that for my pains I should be the first sheet used, and the corner sticking out should be first victimized. He would go prepare the negative, and then come after me.

What is a *negative?* thought I, and concluded I would find out. Looking about me with my little corner, I observed a small dark room, with only yellow glass to let in a little light; in it were two men stalking around like demons—one with a little lamp in his hand lighting the other while he cleaned a piece of glass with something from a bottle labelled "Rotten-stone." I heard them say they were making the negative. The room seemed to be very clean and nice, and in perfect order. Bottles and brushes, and funnels, and other articles, were there in abundance, and all properly labelled, and in a special place where they could be found when wanted, without trouble. This enabled me to find out and tell you more than I should otherwise be able to do.

After cleaning the plate, and carefully brushing it over with a wide camel's hair blender, the shining glass was seized by one of these gentlemen, and a coating of a very odoriferous creamy substance poured over it, and allowed to flow evenly over the surface, and the surplus run off at one corner into a bottle labelled "Collodion." After the glass was thus coated, it was quickly placed upon a long forked arrangement, and lowered into a deep, narrow, black box, which was labelled "Silver bath." When the glass was removed from the bath, it was quickly placed in another black-looking affair, smaller than the bath, and having a little door, which was shut so suddenly that I could not discover how the glass looked after the treatment it had received. The operator—as I am told such persons are called—seemed in great excitement, and ran out of the room with the whole affair. Then I heard the rumbling of wheels, the crying of children, ringing of bells, blowing of whistles, an occasional "Now!" "Look! look! look! look! look! look!" the whistling of birds, and several other strange noises, that quite overpowered me, and I began to fear something dreadful had happened, until the operator returned to the dark room with a smile on his face. He opened the little door of the black box, and therefrom took my old friend the glass. It presented a most beautiful white and frost-like appearance, and was quite changed in its nature. From a bottle labelled "Developer," the operator poured a solution over the plate, and it immediately grew darker; presently faint lines could be discovered; now the plaid in a little dress, and imme-

diately little hands and feet and faces; and, as if coming up from a mist three beautiful children appeared seated close beside each other. After pouring this fluid on the negative, as it was called, it was well washed with water, and then the men held it up to the light, put their heads together, rubbed their hands over the back of it, looked through it, and finally concluded that it was hardly strong enough, and that they would have to redevelope it. So they took two bottles down from a shelf, and poured from them a mixture which they called re-developer over the negative, moving it from side to side until they said sufficient intensity was obtained. Then the poor negative was put through another washing. I hoped they would get the poor thing *fixed* presently; when, sure enough, down came another bottle, nicely labelled "Fixing solution," which was poured over the negative, after which it was again washed, thoroughly dried, and *another* bottle labelled "Varnish" taken down, and its contents poured over the negative, when it was placed in a drying rack, and I saw the men prepare to repeat the experiment on another glass plate.

At this moment I felt quite relieved within myself, caused by seeing, as I suppose, that poor glass receive a little rest; but such, alas! was not the case. Great excitement seemed to pervade overhead, and I saw my kindred sheets dragged away from me, while I was seized by my unfortunate corner, and hurried up a flight or two of stairs into a very warm, dark room, and laid down upon a table, where sat a pearly-white pan, full of a very pretty colorless fluid, which was called "Silvering solution." This was precipitated, and one-fifth was re-dissolved with liquid ammonia, mixed with the other four-fifths, and the sediment dissolved with nitric acid. Presently I was taken up gently and carefully floated upon the surface of this beautiful solution for about a minute, which was more pleasant to bear, but more alarming in its results, than that offensive albumen. I was then removed, and hung lengthwise upon two terribly-sharp needles until the waste solution had dripped from my almost strangled self. I was then placed in a fearfully-close box held tightly by two unyielding clips over dozens of tiny gas jets, that winked wickedly at, and tried in vain to reach me with their fiery tongues, while I curled myself up to escape their torment and persecution.

When dried perfectly, I was removed and hurried through another dark mysterious passage, placed in a box, seized by another twain of voracious clips, and there allowed to hang for five or ten minutes over a saucer of ammonia, which would have been a relief to my nervous system had it not been so strong as to suffocate me, and deprive me of my senses to such an extent that I knew nothing until I found myself out in fresh air and sunlight, pressed closely to, and face to face with, my old friend the negative of the trio of tiny children. A coarse, ugly man would occasionally separate us in part, and then quickly press us together again. Finally we were parted entirely, and purple and black with rage and heat I was thrown into a dark drawer, only to be taken away in a few moments by a man with very black fingers. He carried me down stairs again, and plunged me into a deep tank

of water, vowing he would wash away some of my ugly self, and then fix me so that I wouldn't get away soon.

After coming out of this generous bath, I observed the image of the three children upon my surface precisely like that upon the negative, which I must leave you to account for. After this I was put through what the black-fingered gent called a toning solution, then washed again, and *fixed* in the same manner that the poor negative was fixed, and finally placed in a large tank of clean water, where a hundred jets tried their best to squirt me out of existence. I succeeded in floating up in a corner of the tank, and in clinging fast to its side—a trick which I now regret, as I am rapidly fading away in consequence, as they say I was not washed enough, and must soon expect to fade away entirely. I was removed from the tank, and with a number of other victims run through a patent clothes-ringer, carried down stairs, my sides and ends neatly trimmed, a smattering of flourine brushed over my back, placed upon a pure white mount, or card, by delicate female fingers, and laid aside until nearly dry, when I was put through a crushing pair of rollers, a polish of white wax and turpentine rubbed over me, and finally laid aside and pronounced finished.

Need I tell you more? How I was placed in the breast-pocket of one of our noble heroes as he left his darling trio and their precious mother to go to defend his flag and their homes from the invader? How he kissed me and pressed me to his bosom before and after battle, and how the hot tears often fell upon me? How the relentless bullet came along whispering death and destruction, and sparing me, entered his noble breast, and felled him to the earth? How his eager hands grasped me and held me before his eyes until they lost their brightness, and until his last prayer for them was sent to heaven? Need I tell you all this? Nay! the story is an old and never-to-be-forgotten one. I need not repeat it; but simply add, that I am fading away, the result of no bad manipulation—for I was made by the best processes known—but of my refusing to be properly washed, which causes the fading away prematurely of many a person as well as many a *carte de visite*.

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EVERY morning we enter upon a new day, carrying still an unknown future in its bosom. Thoughts may be born to-day, which may never be extinguished. Hopes may be excited to-day which may never expire. Acts may be performed to-day, the consequence of which may not be realised till eternity.

THE WONDER-SMITH.

A WEIRD STORY.

(Concluded from p. 384.)

CAN you imagine Jove, limitless in power and wrath, hurling from his vast grasp mountain after mountain upon the struggling Enceladus; and picture the Titan sinking, sinking deeper and deeper into the earth, crushed and dying, with nothing visible through the superincumbent masses of Pelion and Ossa, but a gigantic head and two flaming eyes, that, despite the death which is creeping through each vein, still flash back defiance to the Divine enemy? Well, Solon and Herr Hippe presented such a picture, seen through the wrong end of a telescope, reduced in proportion, but alike in action. Solon's feeble body seemed to sink into utter annihilation beneath the horrible taunts that his enemy hurled at him, while the large brave brow and unconquered eyes still sent forth a magnetic resistance.

Suddenly the poor hunchback felt his arm grasped: a thrill seemed to run through his entire body. A warm atmosphere, invigorating, and full of delicious odour, surrounded him. It appeared as if invisible bandages were twisted all about his limbs, giving him a strange strength. His sinking legs straightened; his powerless arms were braced. Astonished, he glanced round for an instant, and beheld Zonéla, with a world of love burning in her large lambent eyes, wreathing her round white arms about his humped shoulders. Then the poet knew the great sustaining power of love. Solon reared himself boldly.

"Sneer at my poor form," he cried, in strong vibrating tones, flinging out one long arm and one thin finger at the Wonder-smith, as if he would have impaled him like a beetle. "Humiliate me, if you can. I care not. You are a wretch, and I am honest and pure. This girl is not your daughter. You are like one of those demons in the fairy tales that held beauty and purity locked in infernal spells. I do not fear you, Herr Hippe. There are stories abroad about you in the neighbourhood, and when you pass, people say that they feel evil and blight hovering over their thresholds. You prosecute this girl. You are her tyrant. You hate her. I am a cripple. Providence has cast this lump upon my shoulders. But that is nothing. The camel, that is the salvation of the children of the desert, has been given his hump in order that he might bear his human burden better. This girl, who is as homeless as the Arab, is my appointed load in life; and, please God, I will carry her on this back hunched though it may be. I have come to see her because I love her: because she loves me. You have no claim on her, so I will take her from you."

Quick as lightning the Wonder-smith had stridden a few paces and grasped the poor cripple, who was yet quivering with the departing thunder of his passion. He seized him in his bony muscular grasp as he would have seized

a puppet, and held him at arm's length gasping and powerless; while Zonéla, pale, breathless, entreating, sank half-kneeling on the floor.

"Your skeleton will be interesting to science when you are dead, Mr. Solon," hissed the Wonder-smith. "But before I have the pleasure of reducing you to an anatomy, which I will assuredly do, I wish to compliment you on your power of penetration, or sources of information; for I know not if you have derived your knowledge from your own mental research or the efforts of others. You are perfectly correct in your statement that this charming young person, who, day after day, parades the streets with a barrel-organ and a monkey—the last unhappily indisposed at present—listening to the degrading jokes of ribald boys and depraved men; you are quite correct, sir, in stating that she is not my daughter. On the contrary, she is the daughter of an Hungarian nobleman who had the misfortune to incur my displeasure. I had a son, crooked spawn of a Christian!—a son, not like you, cankered, gnarled stump of life that you are, but a youth tall and fair, and noble in aspect, as became a child of one whose lineage makes Pharaoh modern—a youth whose foot in the dance was as swift and beautiful to look at as the golden sandals of the sun when he dances upon the sea in summer. This youth was virtuous and good, and being of good race, and dwelling in a country where his rank, gipsy as he was, was recognised, he mixed with the proudest of the land. One day he fell in with this accursed Hungarian, a fierce drinker of that devil's blood called brandy. My child until that hour had avoided this bane of our race. Generous wine he drank, because the soul of the sun our ancestor palpitated in its purple waves. But brandy, which is fallen and accursed wine, as devils are fallen and accursed angels, had never crossed his lips, until in an evil hour he was seduced by this Christian hog, and from that day forth his life was one fiery debauch which set only in the black waves of death. I vowed vengeance on the destroyer of my child, and I kept my word. I have destroyed *his* child—not compassed her death, but blighted her life, steeped her in misery and poverty; and now, thanks to the thousand devils, I have discovered a new torture for her heart. She thought to solace her heart with a love episode! Sweet little epicure that she was! She shall have her little crooked lover shan't she? Oh, yes! She shall have him, cold and stark, and livid, with that great, black, heavy hunch, which no back, however broad, can bear, Death, sitting between his shoulders!"

There was something so awful and demoniac in this entire speech, and the manner in which it was delivered, that it petrified Zonéla into a mere inanimate figure, whose eyes seemed unalterably fixed on the fierce cruel face of the Wonder-smith. As for Solon, he was paralyzed in the grasp of his foe. He heard, but could not reply. His large eyes, dilated with horror so far beyond their ordinary size, expressed unutterable agony.

The last sentence had hardly been hissed out by the gipsy, when he took from his pocket a long thin coil of whipcord, which he entangled in a complicated mesh around the cripple's body. It was not the ordinary binding of a prisoner. The slender lash passed and repassed in a thousand intricate folds,

over the powerless limbs of the poor hunchback. When the operation was completed, he looked as if he had been sewed from head to foot in some singularly ingenious species of network.

"Now, my pretty lop-sided little lover," laughed Herr Hippe, flinging Solon over his shoulder, as a fisherman might fling a net-full of fish. "We will proceed to put you into your little cage, until your little coffin is quite ready. Meanwhile, we will lock up your little darling beggar-girl to mourn over your untimely end."

So saying, he stepped from the room with his captive, and securely locked the door behind him.

When he had disappeared, the frozen Zonéla thawed, and with a shriek of anguish flung herself on the inanimate body of Furbelow.

CHAPTER VI.

THE POISONING OF THE SWORDS.

It was New Year's Eve, and eleven o'clock at night. All over this great land, and every great city in the land, curly heads were lying on white pillows, dreaming of the coming of the generous Santa Claus, innumerable stockings hung by countless bedsides, visions of beautiful toys passed in splendid pageantry through myriads of dimly lit dormitories, made millions of little hearts palpitate in sleep. Ah! what heavenly toys those were that the children of this soil beheld that mystic night in their dreams! painted cars with orchestral wheels, making music more delicious than the roll of planets. Agile men of cylindrical figure, who sprang unexpectedly out of meek-looking boxes, with a supernatural fierceness in their crimson cheeks and fur whiskers. Herds of marvellous sheep, with fleeces as impossible as the one that Jason sailed after; animals entirely indifferent to grass and water and "rot" and "ticks," horses spotted with an astounding regularity, and furnished with the most ingenious methods of locomotion. Slender foreigners, attired in painfully short tunics, whose existence passed in continually turning heels over head down a steep flight of steps, at the bottom of which they lay in an exhausted condition, with dislocated limbs, until they were restored to their former elevation, when they went at it again as if nothing had happened. Stately swans, that seemed to have a touch of the ostrich in them, for they swam continually after a piece of iron, which was held before them, as if consumed with a ferruginous hunger. Whole farmyards of roosters, whose tails curled the wrong way—a slight defect, that was, however, amply atoned for by the size and brilliancy of their scarlet combs, which, it would appear, Providence had intended for pen wipers. Pears, that, when applied to youthful lips, gave forth sweet and inspiring sounds. Regiments of soldiers, that performed neat, but limited evolutions on cross-jointed contractile battle fields. All these things, idolized, transfigured, and illuminated by the powers and atmosphere and coloured lamps of

dreamland, did the millions of dear sleeping children behold, the night of the New Year's Eve of which I speak.

It was on this night, when Time was preparing to shed his skin and come out young and golden and glossy as ever,—when, in the vast chambers of the universe, silent and infallible preparations were making for the wonderful birth of the coming year,—when mystic dews were secreted for his baptism, and mystic instruments were tuned in space to welcome him ; it was this holy and solemn hour that the Wonder-smith and his three gipsy companions sat in close conclave in the little parlour before mentioned.

There was a fire roaring in the grate. On a table, nearly in the centre of the room, stood a huge decanter of port wine, that glowed in the blaze which lit the chamber, like a flask of crimson fire. On every side, piled in heaps inaminate, but scowling with the same old wondrous scowl, lay myriads of the manikins, all clutching in their wooden hands their tiny weapons. The Wonder-smith held in one hand a small silver bowl filled with a green glutinous substance, which he was delicately applying, with the aid of a camel's hair brush, to the tips of tiny swords and daggers. A horrible smile wandered over his sallow face—a smile as unwholesome in appearance as the sickly light that plays above reeking graveyards.

"Let us drink great draughts, brothers," he cried, leaving off his strange anointment for awhile to lift a great glass, filled with sparkling liquor, to his lips. "Let us drink to our approaching triumph. Let us drink to the great poison, Macousha. Subtle seed of death—swift hurricane that sweeps away life—vast hammer that crushes brain and heart and artery with its resistless weight. I drink to it."

"It is a noble decoction, Duke Balthazar," said the old fortune-teller Madame Filomel, nodding in her chair as she swallowed her wine in great gulps. "Where did you obtain it?"

"It is made," said the Wonder-smith, swallowing another great gobletfull of wine ere he replied, "in the wild woods of Guiana in silence and in mystery. But one tribe of Indians, the Macoushi Indians, know the secret. It is simmered over fires built of strange woods, and the maker of it dies in the making. The place, for a mile around the spot where it is fabricated, is shunned as accursed. Devils hover over the pot in which it stews, and the birds of the air, scenting the smallest breath of its vapour from far away, drop to earth with paralyzed wings, cold and dead."

"It kills, then, fast?" asked Kerplonne, the artificial eye-maker, his own eyes gleaming under the influence of the wine, with a sinister lustre, as if they had been fresh from the factory, and were yet untarnished by me.

"Kills?" echoed the Wonder-smith, derisively ; "it is swifter than thunderbolts, stronger than lightning. But you shall see it proved before we let off our army on the city accursed. You shall see a wretch die as if smitten by a falling fragment of the sun."

"What? Do you mean Solon?" asked Oaksmith and the fortune-teller together.

"Ah! you mean the young man who makes commerce with books?" echoed Kerplonne. "It is well. His agonies will instruct us."

"Yes, Solon!" answered Hippe, with a savage accent. "I hate him, and he shall die this horrid death. "Ah, how the little fellows will leap about him when I bring him in bound and helpless, and give their beautiful wicked souls to them! How they will pierce him in ten thousand spots with their poisoned weapons until his skin turns blue and violet and crimson, and his form swells with the venom until his hump is lost in shapeless flesh! He hears what I say, every word of it. He is in the closet next door, and is listening. How comfortable he feels! How the sweat of terror rolls on his brow! How he tries to loosen his bonds, and curses all earth and heaven when he finds that he cannot! Ho! ho! Handsome lover of Zonéla, will she kiss you when you are livid and swollen? Brothers, let us drink again—drink always. Here, Oaksmith, take these brushes, and you, Filomel, and finish the anointing of these swords. This wine is grand—this poison is grand! It is fine to have good wine to drink and good poison to kill with, is it not?" And, with flushed face and rolling eyes, the Wonder-smith continued to drink and use his brush alternately.

The others hastened to follow his example. It was a horrible scene—those four wicked faces; those myriads of tiny faces just as wicked; the certain unearthly air that pervaded the apartment; the red unwholesome glare cast by the fire; the wild and reckless way in which the weird company drank the red illumined wine.

The anointing of the swords went on rapidly, and the wine went as rapidly down the throats of the four poisoners. Their faces grew more and more inflamed each instant, their eyes shone like rolling fireballs, their hair was moist and dishevelled. The old fortune-teller rocked to and fro in her chair like those legless plaster figures that sway upon convex loaded bottoms. All four began to mutter incoherent sentences, and babble unintelligible wickedness. Still the anointing of the swords went on.

"I see the faces of millions of young corpses," babbled Herr Hippe, gazing with swimming eyes, into the silver bowl that contained the macousha poison; "all young, all Christians; and the little fellows dancing, dancing, and stabbing, stabbing. Filomel! Filomel, I say!"

"Well, grand duke," snored the old woman, giving a violent lurch.

"Where's the bottle of souls?"

"In my right-hand pocket, Herr Hippe," and she felt, so as to assure herself that it was there.

She half drew out the black bottle before described in this narrative, and let it slide again into her pocket; let it slide again, but it did not completely regain its former place. Caught by some accident, it hung half out, swaying over the edge of the pocket, as the fat midwife rolled backwards and forwards in her drunken efforts at equilibrium.

"All right," said Herr Hippe; "perfectly right. Let's drink."

He reached out his hand for his glass, and, with a dull sigh, dropped on the

table in the instantaneous slumber of intoxication. Oaksmith soon fell back in his chair, breathing heavily, Kerplonne followed, and the heavy, stentorious breathing of Filomel told that she slumbered also; but still her chair retained its rocking motion, and still the bottle of souls balanced itself on the edge of her pocket.

CHAPTER VII.

LET LOOSE.

SURE enough, Solon heard every word of the fiendish talk of the Wonder-smith. For how many days he had been shut up, bound in the terrible net in that dark closet, he did not know; but now he felt that his last hour was come. His little strength was completely worn out in efforts to disentangle himself. Once a day a door opened, and Herr Hippe placed a crust of bread and a cup of water within his reach. On this meagre fare he had subsisted. It was a hard life; but, bad as it was, it was better than the horrible death that menaced him. His brain reeled with terror at the prospect of it. Then, where was Zonéla? Why did she not come to his rescue? But she was, perhaps, dead. The darkness, too, appalled him. A faint light, when the moon was bright, came at night through a chink far up in the wall, and the only other hole in the chamber was an aperture through which, at some former time, a stove-pipe had been passed. Even if he were free there would have been small hope of escape; but laced, as it were, in a network of steel, what was to be done? He groaned and writhed upon the floor, and tore at the boards with his hands, which were free from the wrists down. All else was solidly laced up as an Indian papoose. Nothing but pride kept him from shrieking aloud when, on the night of New Year's Eve, he heard the fiendish Hippe recite the programme of his murder.

While he was thus wailing and gnashing his teeth in darkness and torture, he heard a faint noise above his head. Then something seemed to leap from the ceiling and alight softly on the floor. He shuddered with terror. Was it some new torture of the Wonder-smith's invention? The next moment, he felt some animal crawling over his body, and a soft, silky paw was pushed timidly across his face. His heart leaped with joy.

"It is Furbelow!" he cried. "Zonéla has sent him. He came through the stove-pipe hole."

It was Furbelow, indeed, restored to life by Zonéla's care, and who had come down a narrow tube, that no human being could have threaded, to console the poor captive. The monkey nestled closely in the Hunchback's bosom, as he did so, Solon felt something cold and hard hanging from his neck. He touched it. It was sharp. By the dim light that struggled through the aperture high up in the wall, he discovered a knife, suspended by a bit of cord. Ah! how the blood came rushing through the veins that crossed over and through his heart, when life and liberty came to him in this bit of

rusty steel! With his manacled hands he loosened the heaven-sent weapon; a few cuts were rapidly made in the cunning network of cord that enveloped his limbs, and in a few seconds he was free!—Cramped and faint with hunger, but free!—free to move, to use the limbs that God had given him for his preservation,—free to fight,—to die fighting perhaps, but still to die free. He ran to the door. The bolt was a weak one, for the Wonder-smith had calculated more surely on his prison of cords than on any jail of stone,—and more; and with a few efforts the door opened. He went cautiously out into the darkness, with Furbelow perched on his shoulder, pressing his cold muzzle against his cheek. He had made but a few steps when a trembling hand was put into his, and in another moment Zonéla's palpitating heart was pressed against his own. One long kiss, an embrace, a few whispered words, and the Hunchback and the girl stole softly towards the door of the chamber in which the four gipsies slept. All seemed still; nothing but the hard breathing of the sleepers, and the monotonous rocking of Madame Filomel's chair broke the silence. Solon stooped down and put his eye to the keyhole, through which a red bar of light streamed into the entry. As he did so, his foot crushed some brittle substance that lay just outside the door; at the same moment a howl of agony was heard to issue from the room within. Solon started; nor did he know that he had at that instant crushed into dust Monsieur Kerplonne's supernumerary eye, and the owner, though wrapt in a drunken sleep, felt the pangs quiver through his brain.

While Solon peeped through the keyhole, all in the room was motionless. He had not gazed, however, for many seconds, when the chair of the fortune-teller gave a sudden lurch, and the black bottle, already hanging half out of her wide pocket, slipped entirely from its resting place, and, falling heavily to the ground, shivered into fragments.

Then took place an astonishing spectacle. The myriads of armed dolls, that lay in piles about the room, became suddenly imbued with motion. They stood up straight, their tiny limbs moved, their black eyes flashed with wicked purposes, their thread like swords gleamed as they waived them to and fro. The villanous souls imprisoned in the bottle began to work within them.

Like the Liliputians, when they found the giant Gulliver asleep, they scaled in swarms the burly sides of the four sleeping gipsies. At every step they took, they drove their thin swords and quivering daggers into the flesh of the drunken authors of their being.

To stab and kill was their mission, and they stabbed and killed with incredible fury. They clustered on the Wonder-smith's sallow cheeks and sinewy throat, piercing every portion with their diminutive poisoned blades. Filomel's fat carcass was alive with them. They blackened the spare body of Monsieur Kerplonne. They covered Oaksmith's huge form like a cluster of insects.

Overcome completely with the fumes of wine, these tiny wounds did not for a few moments awaken the sleeping victims; but the swift and deadly poison macousha, with which the weapons had been so fiendishly anointed, began to work, Herr Hippe, stung into sudden life, leaped to his feet, with a

dwarf army clinging to his clothes and his hands,—always stabbing, stabbing, stabbing. For an instant, a look of stupid bewilderment clouded his face; then the horrible truth burst upon him. He gave a shriek like that which a horse utters when he finds himself fettered and surrounded by fire,—a shriek that curdled the air for miles and miles.

"Oaksmith! Kerplonne! Filomel! Awake! awake! We are lost! The souls have got loose! We are dead! poisoned! Oh, accursed ones! Oh, demoms, ye are slaying me! Ah! fiends of Hell!"

Aroused by these frightful howls, the three gipsies sprang also to their feet, to find themselves stung to death by the manikins. They raved, they shrieked, they swore. They staggered round the chamber. Blinded in the eyes by the ever stabbing weapons, with the poison already burning in their veins like red-hot lead, their forms swelling and discolouring visibly every moment, their howls and attitudes and furious gestures made the scene look like a chamber in hell.

Maddened beyond endurance, the Wonder-smith, half blinded and choking with the venom that had congested all the blood-vessels of his body, seized dozens of the manikins and dashed them into the fire, trampling them down with his feet.

"Ye shall die too, if I die" he cried, with a roar like that of a tiger. "Ye shall burn, if I burn. I gave yo life, I give ye death. Down! down! burn! flame! Fiends that ye are to slay me! Help me, brothers! Before we die let us have our revenge!"

On this, the other gipsies, themselves maddened by approaching death, began hurling manikins by handfuls into the fire. The little creatures, being wooden of body, quickly caught the flames, and an awful struggle for life took place in miniature in the grate. Some of them escaped from between the bars and ran about the room, blazing, writhing in agony, and igniting the curtains and other draperies that hung around. Others fought and stabbed one another in the very core of the fire, like combating salamanders. Meantime, the motions of the gipsies grew more languid and slow, and their curses were uttered in choked guttural tones. The faces of all four were spotted with red and green and violet, like so many egg plants. Their bodies were swollen to a frightful size, and at last they dropped on the floor, like over-ripe fruit shaken from the boughs by the winds of autumn.

The chamber was now a sheet of fire. The flames roared round and round as if seeking for escape, licking every projecting cornice and sill with greedy tongues, as the serpent licks his prey before he swallows it. A hot, putrid breath came through the keyhole and smote Solon and Zonéla like a wind of death. They clasped each other's hands with a moan of terror, and fled from the house.

The next morning, when the young year was just unclosing its eyes, and the happy children all over the great city were peeping from their beds into the myriads of stockings hanging near by, the blue skies of heaven shone through a black network of stone and charred rafters. These were all that remained of the habitation of Herr Hippe, the Wonder-smith.

THE LUMP OF CLAY.

MY husband was a sculptor. He was by birth an Italian, but we lived during our married life in the city of New Orleans. He was not a poor artist; on the contrary he was wealthy, and spent his money lavishly, as men of genius often do. The daintiest viands, the rarest wines, were always upon our table; and he would have dressed me like a queen, had not my Puritan tastes interposed and sobered down the gorgeous robes he would have had me wear; while our house was crowded with costly trifles; and our plate the finest in the city.

Often and often friends have spoken to us, half in jest and half in earnest, of the tempting bait our dwelling offered to burglars or dishonest servants, but Ludivico laughed at their warnings, and I never knew fear when he was by.

So we had lived for five years, less careful by far of bolts and bars than many who had little save their four walls to protect, and never suffering save from some petty pilferer, when the autumn of 18— came. We had just returned from our summer trip inland, and Ludivico was busy with preparations for new work; fresh clay had been carried to his studio, models engaged, and everything prepared for a busy winter. I had my new duties and cares also, for a little infant not three months old lay upon my breast. And we were very proud and happy in our new treasure; never in our lives had we talked so much of the future. Every hour of that coming winter was portioned off. I remember the fact now with a sort of horror, and an indescribable appreciation of the darkness which veils the future from our eyes which I never felt before.

Yet why should we have feared to hope? We were young; we were healthy; we had enough and to spare of this world's goods; and we adored each other. The thought that all this might not last never entered my mind, nor, I believe my husband's.

One night I had put my babe to sleep and went out into the kitchen to see the cook, to whom I had certain orders to give concerning breakfast, but could not find her.

Our servants were forbidden to remain out later than nine, and it was nearly eleven. I felt angry with the girl, the more so that she had left an outer door swinging and flapping in the wind; and with an exclamation of impatience I went to close it.

As I stood for a moment on the threshold I could see the garden still full of beautiful flowers, and at its foot, leaning over the low fence, stood the girl, Jane, talking to a man.

The moon shone full upon them, and I saw the features of both plainly. Jane was a light mulatto, and it was impossible to tell whether the man was of her own colour or a very swarthy white person. But, white or black, the

expression of the face was hideous, malevolent, brutal, full of cunning; a face to be seen among felons' faces; such a face as Hogarth has drawn, and no man besides who ever handled brush.

I gazed one moment; then called out sharply and quickly, "Jane, come in; it is too late to stay out," and retreated.

In a moment Jane was with me, apologizing in her own servile way, and taking my rebuke very quietly.

I gave her my orders and sent her to bed, and then went up stairs and forgot all about the matter, though it was in my mind to speak of it when I was at the door.

For once in the room I found my husband had brought in upon a board a piece of wet clay, and set it at the foot of the bed, and my first words were:

"Are you going to work to-night, Ludivico?"

"No," said he, "the clay is too wet; but to-morrow the first thing I am going to begin—can you guess what?"

"No," said I.

"Our baby," said my husband; "we will make a sleeping Cupid of him. It shall be my first work this winter."

I laughed with glee.

"I shall prize it so," I said. "He is lovely, is he not?" and I kissed the child softly as he slept. An hour after I was sleeping also, tranquilly, dreamlessly. The lamps were out, all was darkness and peace. How long it lasted I do not know.

I awakened with a start. I suppose some slight voice aroused me, for after lying awake a few moments I became conscious that some one was moving stealthily about the room—some one with bare feet.

I called out, "Ludivico, is that you?" and then with terror heard his sleeping breath at my ear, and knew some stranger was in the room. Soon I heard a stumble and an oath, suppressed, but plain; then the board on which the clay rested seemed to be pushed across the floor. My heart throbbed fearfully, I knew now that burglars were in the house, and I thought only of our personal safety. They might take all if they did not harm my husband and my child. I watched and listened, holding my breath until a ray of light shone in the room, and I knew the thief had lighted a dark lantern. I heard the tinkle of the different articles he slipped into a bag. I heard drawers and wardrobes stealthily opened, and I prayed that his cupidity might be satisfied, and that he might go leaving us unharmed.

Alas, the prayer was vain! Some noise louder than the rest awoke my husband. I strove in vain to restrain or silence him. He sprung from the bed, shouted "Who is there?" and made for the dark shape just visible. In an instant the lantern was darkened, and a struggle in the dark commenced. I shrieked frantically. Steps and lights approached. A pistol was fired, a heavy fall followed. I heard the robber dash from the room and down the stairs, and the next moment the room was full of trembling servants, and I

saw, by the lights they carried, Ludivico lying upon the floor weltering in his blood.

I called his name. He made me no answer. I lifted up his face. Alas! the truth was written there—the bullet had entered his heart. He was dead!

What need to dwell on that sad time. Friends flocked to my aid, but I cared for nothing now that he was dead.

The house had been stripped of valuables and money. It was the boldest robbery accomplished for years—said the police. But despite all efforts, all offered rewards, the culprit was not to be found. He had escaped as completely as though he had vanished from the earth.

When I had buried my darling in the strange city of sepulchres, where the dead of New Orleans repose, and waited many weeks in hopes that his murderer might be found, I took my child and went home to my kindred in old Connecticut. I was wealthy, and in no fear of want during my life. But the only possession I now valued was my child, the boy who might some day wear his father's mien, and speak to me in his father's voice.

I had dismissed Jane. She had been under suspicion, and examined carefully, but she appeared innocent. Of all the servants I kept but one to assist me in packing and travel North with me. While the packing was going on she came to me and said:

"There's a queer bit of clay on a board under your bed, ma'am. Shall I throw it away?"

I burst into tears.

"The last thing his hand ever touched!" I cried. "Oh, no. I will take it with me." So the dry lump made part of my luggage, that and the dainty box-wood tools he had laid out to work with.

I found dear ones to grieve with me and nurse me at home, but my heart was broken. The only one object I had in life was to bring Ludivico's murderer to justice. But how, when experienced detectives had failed upon the spot, was I an inexperienced woman, so many miles away, to succeed? They treated the idea with indulgent pity, but I felt sure that God would help me. The face at the garden gate was stamped upon my memory. It was the only clue I had, but it was something.

Soon I had another.

One day I began to unpack my effects, and arrange them in my present home. Almost at the last of the work I came to that which was to have been our sleeping cherub, but which was now, like the hand which thought to mould it, a mere cold lump of clay.

I laid it on the table, and looked at it. I thought to weep, but amazement checked the tears. There, in the midst of the dry mould, was the impress of a foot—the lower part of a coarse, large, *maimed* man's foot!

The truth burst upon me at once. The robber had trodden in the clay. I remembered that the stairs and floor were spotted with it. I remembered his ejaculation, and the thud of the clay against the bedstead. It was all plain. I locked the door, and sat down with both hands to my head. A fierce joy

possessed me. I knew what to do. My hands had dabbled in cast-making often enough.

I found some plaster of Paris, and soon the foot, up to the instep, stood before me—a coarse, large foot, as I have said before, with two toes gone (the great toe and the one next it), and an incision in the side, as though a piece had been cut away.

When I had done this—and, though it was a matter of some time, I said not a word to any one—I broke down, and lay ill a long while. The excitement had been very great, and brought on a brain-fever, from which I nearly died.

Yet, despite all this, nothing came of my discovery. I waited and hoped in vain. A year passed, five, the sixth began and crept on until the winter, and yet, though I had written to influential friends in New Orleans, nothing was made by my discovery. At last I said—

"The secret is veiled from human eyes for ever. I must give up hope." And I was calmer after that.

My boy was now a comfort to me, and I had gone to housekeeping, with a young sister for my companion. She was a beautiful creature, and very much admired. My house grew gay, for I could not doom her to dullness, and young voices and laughter and music filled the parlours almost nightly.

Sometimes, however, I was alone there, while she was away amidst gay scenes and merry friends; and then I thought until thinking was a pain and the hours seemed years.

One cold winter night I had been thus alone, when my sister Grace came home. She was in a merry mood, and cast her fur wrappings from her gleefully as she sat down by the fire.

"I've made a conquest, my dear," she said.

"Is that anything new?" asked I.

"*He* is. What do you say to a millionaire?"

"I should ask, what is he besides a millionaire?"

"Oh! a Cuban, forty odd, I suppose, and not a bit handsome; but he adores me already. It's no joke, Ella; and I always said I would marry a rich man."

"Not without loving him?"

"Bah! It's enough if he loves me. How do love-matches end? Either one dies and the other is wretched, or they quarrel and are divorced in a year or two. Better not love, say I."

I sighed. She was half right, after all.

"He's a mystery, too," said Grace. "No one knows anything about him, except that he's enormously rich. He has bought the Elms—the finest place here, you know—and they are making a great pet of him, all for his money. He saw me home, to the envy of every girl in the room; and he'll probably call to morrow to ask how I am. Will you shut me in my room and send him away, cruel sister?"

I tried to smile, and the thought came upon me that it might be better

never to know the height of happiness, if one must be plunged from it into the depths of misery.

"I shall not turn the Cuban away if he is a good man and my sister likes him," I said; and Grace laughed and went to bed.

The Cuban did call next day, but I was out and did not see him. The neighbours spoke well of him, however; and he had bought the great place called "The Elms," and intended to be a resident of the town. In a worldly point of view, it seemed a good match for any girl, and I waited anxiously to see the man himself. Three days after I had the opportunity.

Grace had been to church in the evening; my boy was ill, and I had staid away. When it was time for service to be over, I sat by the window watching for her. The bed room was dark, and the moon outside very bright; consequently I could see the garden plainly. Soon Grace came up the path on a man's arm. At the gate she bade him good-bye, and stopped to say a few words. She stood inside, swinging the gate in her hand. He leaned with both arms folded on the fence outside.

I had seen the picture before. Where? With a leap my mind went back to the night before my husband's murder: I saw Jane, the mulatto cook, and her companion; and, oh! merciful heavens! the man's face was the same. This was shaded by a fashionable hat; a fashionable collar and cravat, and an elegant overcoat finished the costume, while the first face was set off by ragged and ruffianly garments; but the persons were the same. I could have laid my hand upon the Bible, and sworn to that fact upon the spot. As I grew positive of this, my senses departed, and my sister, when she entered, found me in a swoon upon the floor.

When I recovered, I doubted my own sanity. I laid what I had seen to the illusion of moonlight and distance. I argued with myself that until I had again seen this Cuban I must regard the whole affair as a delusion. I waited, not patiently but silently. Soon I met him face to face in my own parlour. The moment was a terrible one. I knew now I had made no mistake.

There had never been the faintest doubt in my mind that this companion of Jane's had been at the bottom of the dark deed of that horrible night. There was no doubt now that this was the man; yet my own common sense told me that to accuse a wealthy gentleman on such light grounds as the memory of a face seen once by moonlight would be absurd. I should be called insane. But, if I were, this was a bold, bad man, and Grace should have no more to do with him. I told her so that night, and she turned on me angrily.

"You should have spoken sooner," she said. "It has gone too far. I am half engaged to him. It is a splendid match for a poor girl, and I'll marry him."

"Do you love him?" said I.

She laughed. "No; but, as I said once before, he loves me. That's enough. I shall get used to his ways and looks, no doubt; and I shall be mistress of a

splendid house, carriage, horses, etc., and shall enjoy myself. It is only for his ugly face you hate my Cuban? Don't you remember Shakespere: 'Mislike me not for my complexion,' etc. To be sure, he is suspiciously dark; but it *is* Cuban—nothing else."

And changing at once from angry to gay she kissed me.

"He has a horrible face," I said; "but that is not all. Grace, this must not go on. I will tell you a secret. The face I saw over the gate on that awful night talking to Jane. The face of one connected, I am sure, with this murder was this man's face! and he, Grace, is the man himself."

Grace answered with a laugh.

"You are wild," she said. "That, you have always said, was a ragged, wretched fellow."

"Yes; but still the man in other clothes—"

"A millionaire has no need to turn burglar."

"How did this man make his money—can you answer?"

"Nonsense—of course not. Cotton or sugar I suppose. I hope you are not going to have another brain-fever, my dear."

"My brain is steady, Grace. Heed me."

"That I can't you will see your folly soon. The idea! Because the poor man is ugly, I'll make him tell how he came by his fortune! Sleep on it, and you'll see your insanity."

She danced away, and I crept to bed with a heavy heart.

The next day she came to me gleefully. "My Cuban made his fortune in trade," she said; "took his father's busines, and gave it up when his million was made. He showed me papers and letters and things I didn't understand, though I pretended to. He didn't find his million in people's cupboards. And he has popped the question, and I have accepted—so there's an end. Come, I know you've had too much trouble; but don't brood over it and go out of your head."

She tried to kiss me, but I held her off.

"Listen, Grace," I said. "If you marry this man and I discover afterward that he knows anything of that awful night I shall still denounce him."

"And welcome," said she. Then with a sudden childish burst of tears she clasped me and cried: "Oh, Ella, don't go crazy—don't go crazy! Try to take comfort; try to be yourself!"

It was useless to argue farther, and I left her.

So, being betrothed to Grace, the Cuban, Mr. Zenzee was his name, brought his hideous face to our house every night.

I loathed it, but I had determined to watch him. With this end I endured the sight and heard him talk. At last I made him contradict himself as to the places where he spent certain years. I confused him by blunt inquiries concerning Cuba. I became convinced that he was no more a Cuban than myself. Then watching him still closer I saw terror as well as brutality in his eye. I knew the man feared something. Closer and closer my fancied proofs were gathering about him, until I began to see in him the actual

murderer. The man who had stolen barefoot about our room, and the clay impress of whose mutilated foot I had locked in a closet in my room. Could I see his foot I could be sure—not else. And that had now become the object of my life; and, all this while, despite all my prayers and protestations, the preparations for my sister's marriage with Mr. Zenzee were going forward.

The day was set. The time narrowed. Before that wedding-day I had sworn to make my discovery. I worked now with two ends. My old one, and that of saving Grace from becoming the wife of a monster.

I watched the foot as a cat watches a mouse, but discovered nothing. My agony grew greater and greater. Time moved too fast for me; I could have prayed for days and hours to lengthen those months out. At last there was but one day between the present in which I lived and that in which my sister would become Mrs. Zenzee. On that morning I awoke with my plan fully matured.

I said to Grace at breakfast: "Since the wedding is so near invite Mr. Zenzee to pass the evening with us,"

She looked up with a smile.

"You are coming to your senses," she said.

I made no answer. After a while I asked again, "Do you love him, Grace?" and she answered: "I told you once why I accepted him. That is my reason still. After all, what *is* love worth?" but she sighed.

My heart had been at ease on that score before. It was even lighter now. But how it throbbed with anxiety. The day wore on tediously, and evening came with a murky rain; but with it came Mr. Zenzee. He took tea with us, and did his best to be agreeable; but somehow, in spite of the remarkably handsome dress he wore, he looked more the ruffian than ever. After ten we had out the card-table, and he showed us some strange tricks at cards, and played against us and cheated us both for fun, and laughed at Grace's wonder. Then Grace sang a while; and then, the clock striking ten, my time had come.

"It is a cold night," said I.

"Bitter," said he, shuddering. "But then I come from a warm climate."

"Something warm to drink would be a comfort," said I.

He brightened up.

"It would suit me," said he.

"A bowl of punch now?" said I.

Grace stared.

"Punch! I thought you—"

I stopped her.

"This is a special occasion," said I; "and, to tell the truth, I have some prepared."

"Fond of a drop yourself of a cold night, and none the worse for it, ma'am," said he, with a laugh.

I laughed too as I left the room. In the kitchen I found my punch-bowl full.

"Is it hot?" said I.

"Boiling," said the girl; and I seized it on its tray with the ladle. Then I called John, our coachman, a burley fellow over six feet in height.

"John," said I, "stay near the door. If I call you, come and do what I tell you."

The man stared but obeyed.

I waited until I heard him plant himself upon the sill of the door, then entered the parlor.

"Taste it, Mr. Zenzee, is it not fine?" I said, and then, as I stood near him, the bowl dropped from my hands, and the contents poured over the floor and the Cuban's knees. I screamed. He howled, for the boiling fluid had filled the loose shoes he wore; and down I went on my knees before the spot to which he had sprung.

"Oh, what an unlucky thing! Are you scalded? Let me see." And as he sat writhing with pain on the sofa I tore off shoes and stockings with great pretence of compassion and grief.

The feet lay bare upon a cushion. The right perfect. The left—that maimed foot which had made its impress in the clay on the night of my husband's murder.

I gave a yell of almost insane triumph, and cried aloud for John.

"Hold him," I said. "Do not let him go. He is a murderer."

I forget the other details of that night, or remember them only in a sort of dream. I know emissaries of the law soon filled my house. I know my wild statement slowly gained credence. I had my proofs in the clay and plaster in my room above. At last, in the recognition of the man as a desperado of the Mississippi, and finally in his own confession.

His end was the one he merited, and my work was done.

FECUNDITY OF THE CODFISH.

THE cod is one of the most prolific of fishes, as may be supposed when we call to mind the vast numbers which are caught at the principal fishing stations through a long succession of years, where one man in Newfoundland has caught five hundred and fifty-two in a day, and upwards of fifteen thousand in a voyage. Ten thousand codfishes were reckoned a proper yearly capture for a man. The fact is well borne out by an examination of the multitude of grains of spawn which have been counted in the mass of the ovaries, and the following proportion was fairly calculated:—In repeated trials two grains in weight of this roe gave the number of ova four hundred and twenty-three; so that, making a full allowance for the membrane mingled with them, the number of living individuals which might have been produced from this fish in which this roe was of less than usual proportionate weight was little less than seven millions.

SPRING SONG.

Creep slowly up the willow-wand,
Young leaves! and, in your lightness,
Teach us that spirits which despond
May wear their own pure brightness.

Into new sweetness slowly dip,
O May!—advance; yet linger:
Nor let the ring too swiftly slip
Down that new-plighted finger.

Thy bursting blooms, O Spring, retard!
While thus thy raptures press on,
How many a joy is lost or marred,
How many a lovely lesson!

For each new sweet thou giv'st us, those
Which first we loved are taken:
In death their eyes must violets close
Before the rose can waken.

Ye woods, with ice-threads tingling late,
Where late was heard the robin,
Your chants that hour but antedate
When Autumn winds are sobbing!

Ye gummy buds, in silken sheath
Hang back, content to glisten!
Hold in, O earth, thy charmed breath!
Thou air be still and listen!

THE NORTHERN LIGHTS AND THE STARS.

The stars are watching at their posts
And raining silence from the sky,
And, guarded by the heavenly hosts,
Earth closes her day-wearied eye.

A reign of holy quietness
Replaces the tumultuous light,
And Nature's weary tribes confess
The calm beatitude of Night:

When from the Arctic pit up-steams
The Boreal fires' portentous glare,
And, bursting into arrowy streams,
Hurls horrid splendors on the air.

The embattled meteors scale the arch,
And toss their lurid banners wide;
Heaven reels with their tempestuous march,
And quivers in the flashing tide.

Against the everlasting stars,
Against the old empyreal Right,
They vainly wage their anarch wars,
In vain they urge their fatuous light.

The skies may flash and meteors glare,
And Hell invade the spheral school;
But Law and Love are sovereign there,
And Sirius and Orion rule.

The stars are watching at their posts,
Again the Silences prevail;
The meteor crew, like guilty ghosts,
Have slunk to the infernal jail.

The truths of God for ever shine,
Though Error glare and Falsehood rage;
The cause of Order is Divine,
And Wisdom rules from age to age.

Faith, Hope, and Love, your time abide,
Let Hades marshal all his hosts,
The heavenly forces with you side,
The stars are watching at their posts.

ELECTRO METALLURGY FOR BOYS;

OR, FIRST STEPS IN ELECTROTYPING.

ELECTRO METALLURGY, or the art of covering various substances, but principally metals, with a thin coating of gold, silver or copper, is most extensively practised at the present day, and forms one of the most interesting and lasting amusements. At a future time we will give full instructions for effectually practising this pleasing art, but for the present we will give the most simple method, a thorough knowledge of which will enable the student more effectually to carry out the rest of the subject.

To proceed, procure 1lb. sulphate copper of good quality, some mercury, camel's hair pencil, a small quantity of sulphuric acid, ditto of pure black lead, wax, a plate of zinc, a porous pot in which it will stand, a piece of copper wire, and a glass or jar which will fit the porous pot.

Now pour one ounce of sulphuric acid into a common wine bottle or jug, then add cautiously ten, twelve, or even more ounces of water; the mixture becomes very hot, and when cold is fit for use. In another vessel place the sulphate of copper, and pour boiling water on it, frequently stir with a glass rod until the water has dissolved as much of the sulphate as possible, then set it aside.

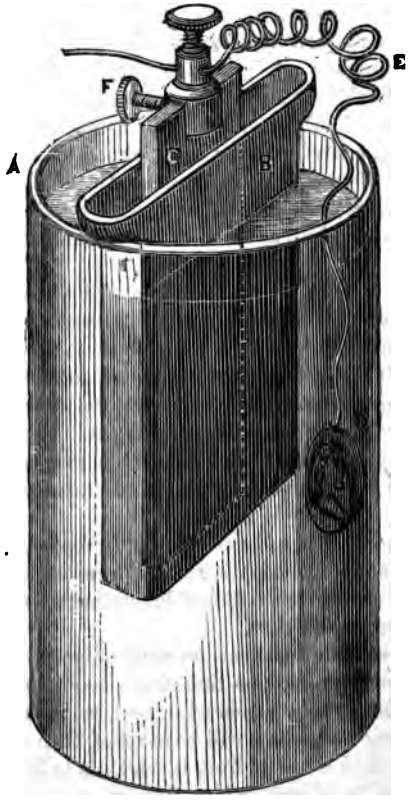
Now dip the plate of zinc in the acid solution, and when well soaked, drop some of the mercury on it, and rub in well all over until it appears as if silvered. A hole is now to be drilled in the zinc at the top, or a brass clamp binding screw, which is far better, is to be screwed on the top. It is then to be placed in the porous pot, the pot filled with the diluted acid, and then placed in the glass vessel or jar called the battery jar. The strong solution of copper is now to be poured in the pot outside the porous jar, and the copper wire is to be twisted in the hole of the zinc, or if a brass screw is employed, to be fastened to it, and the battery is in action.

The medal or mould which is to be covered with copper, or electrotyped, is to be suspended by means of the copper wire in the solution of copper, and in a few minutes becomes coated with a film of bright metallic copper, and being left in a day or two, becomes thicker.

As the mould requires the utmost care to ensure a good result, we will give careful instructions how to proceed, so that there may be no mistake. Now, suppose we wish to electrotype papa's crest or seal, we must first procure an impression in fine sealing-wax, which will be in relief, then mixing some of the finest plaster of Paris, make a mould from it, which is to be thoroughly dried. Then melt a little wax (bees'-wax, white wax, or spermaceti will do, or a mixture is better,) in a saucer, and lay the mould in the melted wax on its back. When the wax appears on the surface of the mould, take it out and allow it to cool, then take some of the pure black lead (never use the domestic article, as it will spoil the mould), place it on the mould, and well work it in, moving the brush in a circle until the surface is well covered. It is then fit

to be placed in the solution as directed, and the best plan is to twist the wire quite round it, and black lead about half an inch of the wire when it leaves the mould. If the copper is not deposited sufficiently thick on the mould, take a few crystals of the sulphate copper, tie them up in a piece of thin muslin, and making a small hook of copper wire, suspend them by means of it in the sulphate solution, which will dissolve the crystals as the copper is deposited on the mould, and keep the solution in pretty good order.

The copper solution will keep for ever, and seldom requires anything but sulphate being added to it, but the acid solution in the porous pot requires to be changed every day or two, and thrown away.



The illustration shows the battery, &c., complete.

The whole of the battery, materials, &c., for the first electrotype, including plaster moulds, &c., may be procured of Mr. Faulkner, Philosophical Instrument Maker, 40, Endell Street, securely packed for 50 stamps, or if our young friends prefer it, we shall be happy to attend to this for them on receiving the amount.

THE DOG BOATSWAIN.

"I AM a friend to dogs, for they are honest creatures," and the circumstance of their being the constant and faithful companion of both man and boy, shows that their character, sensibilities, and intellectual faculties, are more strongly developed than in any other quadruped.

It is a pleasing thought, arising from the conviction that the more the character of the dog is known the better his treatment is likely to be, and the stronger the sympathy excited on his behalf. In this sketch we only purpose to touch upon some of the characteristics of that noble dog that may be justly styled the friend and guardian of his master—

THE NEWFOUNDLAND, THROUGH FIRE AND WATER.

Tom Truelove was about seven years old when, with his father and mother, he set sail from Quebec to England. His sire, Captain Truelove, held a very high position in the mercantile service, and was part owner of the ship *The North Star*, that was now again on her trip to the white cliffs of Old Albion. On this occasion he was carrying back to England the remains of a regiment which had served many years in the rigorous climate of North America, and where, by the strict discipline and good conduct they had shown, they left the shores of Quebec with the good wishes of the inhabitants of all classes. In addition to the wives and children of the soldiers, Mrs. Truelove and Tom were to accompany them home, and the voyage, if it ended safely, was to be the last; for the captain having obtained a handsome independence, resolved upon quitting the perils and dangers of the ocean, and taking his ease for the rest of his days. But there was another on board the vessel for whom a strong attachment existed, and well had he deserved it; for his sagacity, docility, and daring courage, had endeared him to all.

Boatswain, the Newfoundland dog, was perhaps one of the most magnificent animals of his species ever witnessed; possessed of gigantic strength, blended with the more than usual sagacity so inherent in the class to which he belonged. He was quite at home in all parts of the ship, but always if a more than ordinary puff of wind sent the noble craft a little more than was agreeable off an even keel, Bo'son was close alongside Tom, looking up in the boy's face with an unmistakeable look that plainly said, "In case of accident, I am with you, my boy;" and, in return, Tom would place his hand on the massive silver collar that he wore, and then the great dog would rear himself on his hind legs, and placing a fore paw on each shoulder, look up at the drifting clouds, and bark as if some impending danger hung above them, as yet unseen and unthought of. All night long against the cabin door, Bo'son was the watchful, vigilant, faithful sentinel; and when the cheering, deep cry of "All's well!" ran along the deck, Bo'son's low bark responded to it.

We have already spoken of the massive silver collar, and now let us speak of the inscription deeply engraved upon it:

"Presented to the noble dog Boatswain, by the inhabitants of Quebec, as a memento of his daring courage in saving human life."

It came about thus:—In the dead of the night, when the inhabitants of the great city were buried in peaceful slumber, suddenly was heard that awful cry of "Fire, fire!" so appalling to the stoutest heart. The house that Captain Truelove resided in was as if by magic one sheet of livid scathing flame, and in a few minutes more the adjacent houses on both sides were wrapped in the devouring element. So sudden and so complete was the outbreak, that little doubt existed but that it was the work of some diabolical incendiary to carry out some scheme of plunder and villany. The captain and his wife were passing the evening at a dinner given by the naval officer commanding, so that only Tom (then about five years of age) and one or two of the domestics were in the house when this fearful calamity occurred. Suddenly the rapid galloping of horses were heard, mingled with the deep barking of a dog, and in almost an incredible space of time the dog Bo'son came rushing and tearing his way through the crowd, who rapidly fell back at the headlong desperate speed he was seen approaching at.

Then came the agonizing shrieks of the mother calling upon her child, and the deep shouts of anger and desperation of the father, as five or six strong men held him back from certain destruction and a lingering agonizing death.

But a few seconds changed that fearful agony—that feeling almost worse than death—suspense: the great dog came crashing through the window on to the lawn, bearing the boy on his back as easily and as tenderly as a mother would carry her offspring. The shouts that rent the sky at this great and unlooked-for deliverance rang over the whole city, and when the child appeared, strained to the bosom of his almost frenzied mother, frenzied now with joy, men, women, and children ran to pat and caress the noble animal, but he stood defiantly before the boy he had so nobly saved, barking and leaping up as if defying the flames now rapidly dying out; and when the over-joyed parents and their wonderfully preserved child entered the hotel where they were to pass the night, the excited crowd gave them three rounds of heart-stirring cheers, and then one that sounded like thunder for Boatswain, the brave dog, who had enacted more wonders than a man. Then came the presentation and memorial, and the dog that had rushed through fire and saved human life became ennobled.

Two years after the saving of the boy's life Captain Truelove resolved to wind up his affairs in Quebec, to sail for England, and there settle down, as before stated, in the enjoyment of a well hardly earned competence.

Behold, then, the gallant ship, aided by her powerful well-trimmed sails, guided and navigated by the first maritime skill; behold her, we say, making for the shores of Old England, and with hundreds of hearts yearning to behold again the land of their birth. Days and nights have passed, and not a single casualty has happened to mar the happiness of that floating ark of a thousand hopes and fears.

The nearer they approach the haven of their rest the brighter shines the heavenly light by day and night, the closer they rush to that happy land, the more balmy blow the breezes, the heavens wear a smiling aspect, and over all the yearning hearts on board there is a sunny calm and aspect.

So passes the day, and night falls upon the waters; another night or two and the son and daughter may embrace the poor old trembling couple that have been

expecting them; and the poor aged ones, having had their earthly desires fulfilled, may piously pray to depart in peace. Yes, yes, two more revolving suns, and the grim gaunt cliffs of the land will rise upon their view, and the cheering sound, so dear to the mariners' ears, of "Land, oh!" send joy leaping in their hearts and dancing in their eyes; but as the shades of evening wane there is a look of stern anxiety crossing the captain's face, and Boatswain, the great dog of the ship, is jumping up against the bows of the vessel, at one time whining piteously, at others barking furiously. There are frequent and deep consultations of captain and officers in the cabin, and then all are ordered to their berths, the sleepers roused up, and all made snug for the coming night. The glass is rapidly *falling*, thick dark banks of clouds are rising, and they are rapidly nearing a dangerous iron-bound rocky coast.

Suddenly there is a low rushing sound heard across the waters, and in the darkening air, and then the stern, manly tones of the captain to the helmsman. Again comes the rushing howling wind, and the ship flies before it "like arrows from the bow." Again and again, with a roar like thunder, and a sail blown from the ropes rapidly cleaves the air, and is gone for ever. Then the awful storm in all its devastating grandeur bursts upon the ship and its now scared occupants: the cup of hope is dashed from their lips. Shrieks and shouts rise from the place where the trembling women are crowding together; the furious waves have found out a vulnerable part; a port-hole has been stove in, and the waters like a thousand furious giants leap in eager for their prey; then there is a rush, and it is for life, and the deck is in one instant filled with shrieking despairing human beings, death staring them in the face, and drowning their cries for help in the howling wind and the raging storm.

A few moments after, and the energy of the officers and the well-trained habits of the men reduce all to obedience and discipline.

On—on she goes, wildly careering over the waves all through that dark despairing night, until just as the morning light broke gloomily forth she drives hard and fast upon a grinding rock within half a mile of the shore. The inhabitants of that wild and unfrequented coast are seen hurrying down; but alas! there is no life-boat except one some miles off, for whose aid a speedy messenger is sent. The dog is rushing about barking and snapping at the ropes, flying about the deck, when a thought strikes the captain that if a line could be conveyed ashore, some hundreds of lives might be saved. Boatswain knows the part he has to play; for, looking at the captain, he seizes a thin line in his mouth.

The idea is eagerly seized upon, and in a second the line is fastened to the collar, and Boatswain is battling with the waves and making for the shore, amid the prayers of those on board, and the wild shouts of those on the land.

The dog has a hard fight with the roaring waters, but he conquers, though dashed back and back again; and then, when the line is pulled on shore, the strong cable is drawn in with it, and there is hope for all on board. The boats guided by it are safely drawn to land, and women and children cast themselves on the ground, praising and glorifying God who has sent them assistance when all appeared lost.

With the aid of the life-boat and her lion-hearted crew (for who so brave as they in that hour when danger most appals), there has not been a soul lost from that stout but doomed ship, and all owing to the noble dog who risked his life to save the many who had despaired and felt that all was lost.

Many years after there might have been seen at the end of a beautifully laid-out garden belonging to a large mansion in one of the sunny nooks of Devon a marble column, and at the top the colossal figure of a dog with a massive collar round his neck. There, when the land is overcast by storm, or bathing in the beams of the setting sun, a man in the very bloom and prime of life will lead his children, and read the following inscription deeply chiselled on the marble:—

"HERE LIES BOATSWAIN, A NOBLE DOG: HE WAS THE FRIEND OF ALL MANKIND, AND BY HIS HEROIC COURAGE SAVED HUNDREDS OF LIVES."

"THROUGH FIRE AND WATER."

IMPORTANCE OF INTELLECTUAL CULTURE.

THE importance of intellectual culture at the outstart of life, although it is, many times to the contrary, nevertheless, should be deeply impressed upon the mind of youth, as, without one exception to the case, the negligence of early training is surely to lead all those who will not make any mental exertion whatever on their part, to perceive the ennobling benefits which are to be derived from the right pursuance of such a course in the waywardness that always follows almost directly every perverse misfortune, whose darksome lowering clouds are continually hovering over their way, until they have finally lived out at last the expiration of their existence here on earth, and have taken their spirit journey to the far-off land towards which we all alike are daily travelling. Is it not, then, my young reader, far more desirable for you, ere the hour comes that your feet are to tread the busy paths of manhood, to acquiesce to a youthful pursuit of intellectual culture? Is it not greatly for your own essential interest, in the most emphatic point of view, to improve the golden opportunities which are now within the reach of your grasp of acquiring knowledge, that you may be better prepared to meet the days of sunshine and of shadows, for such there will surely be, with the cares and anxieties which will then surround your way, of coming years that loom up so dimly before the vision in the far away future? Then, to be well acquainted with the matters and concerns of every-day life, it is worth something—rather it is worth a vast deal more than one is apt to think, to be systematically schooled in intellectual culture—to be drilled in the elementary rudiments of this elevating principle. Your success must depend upon your own individual exertions. Trust not to the assistance of friends, but learn that every man must be the architect of his own fortune. Wealth is not acquired, as many persons suppose, by fortunate speculations and splendid enterprises, but by the daily practice of industry, frugality, and economy. He who relies upon these means will rarely be found destitute, and whosoever relies upon any other will generally become bankrupt.

ORIGINAL ESSAYS. BY BOYS.

HOW BOYS OUGHT TO ACT.

BY J. PERRY.

THE BOYS' WONDER BOOK is indeed one of the most suitably entitled periodicals of its class, I should think, that is published, and calculated to implant in the youthful intellect the invaluable and varied seeds of knowledge which may be strewn upon the great field of literature. Among the many different volumes designed for boys, I never observed one fraught with such genuine information as the WONDER BOOK. But the most original scheme is the insertion of essays by subscribers who might deem fit to pen them; the founding of examination papers being not at all less judicious; and, although far from concluding that what I write is deserving of an appearance in your journal, yet I feel within an almost insuperable passion to contribute in my little way some few remarks which I hope you will intentionally overlook in the way of criticism. I perceive in your last number an essay by Master James, on "THE DUTY OF KINDNESS TO ANIMALS," which, I must confess, is worthy of no slight admiration, and which gave me a fresh impulse to rouse my dormant habits to a state of mental recreation. It will appear strange at the first thought, that a youth should dwell upon the theme I have selected, especially so when it is considered to whom it is peculiarly directed; nevertheless, my dear young friends, whose pardonable qualities will *stretch* to any extent, may repose assured that I do not intend careering through a grave inhospitable set of unwelcome sentiments, or to ingulf them into a sea of melancholy truths; just the contrary; I shall, as far as possible, endeavour to pitch upon something that will prove interesting, practical, and instructive. Boys, it has been pronounced, are not capable of listening with any degree of delight to a continuous strain of "sermonized" dictations. Well, I think, judging from our inclinations (and it is not to be supposed such inclinations very considerably differ from those of my companions) that, were no other assumption correct, out of the many that are cast upon us the one just mentioned would be the most true.

The purchasers of THE BOYS' WONDER BOOK, I presume, are an intelligent and adroit little folk, who are supposed to obtain a neat, comprehensive library; who, to nourish every ideal endowment, pant after all consistent and beneficial learning; who, fathoming every known depth whereby to attain the real and all important aim for the improvement of their younger companions, would be equipping themselves for some superior state of existence, and at the same time become examples worthy of the respect of every youthful mind with whom they may form an acquaintance. It seems truly natural yet rather curious that we, as boys, should so strongly attach ourselves with boys, as if the adult portion, or any other portion, possessed some

strange and gloomy insignificance towards us, altogether tending to cramp our jovial appetites. Still, however, we must not, with all our admiration of acquaintance, neglect to culture the rightful demands of our "knowledge boxes." Every little intellectual root that may be planted in the soil of the brain requires to be whetted with perseverance in order to procure the sound and blooming flower of thought. Therefore, allow me to inform my juvenile friends that, whatever they do, they should always employ their leisure moments in some profitable manner, endeavour to investigate the causes and effects by which they are surrounded, and determine to instil in their memory each day a fresh sentiment of genuine excellence which could be culled from any volume lying within their observance. It is not to be imagined, however, that what we learn should propend to an immoral nature, or rather lead us to establish in ourselves habits of sensualism. Out of so many actions upon this globe capacitated to degenerate the "vital spark" of the young, sensualism might be termed the grossest malady of all; of the influence and sway of which I could not readily form a conception; although, but for the numerous vile publications that are struck off from the press, I candidly believe we should quickly perceive that the practices of self-gratification amongst the striplings of the community would imperceptibly and gloriously glide away, to be finally dissolved in oblivion. Far from supposing your contributors to indulge in such corrupt exercise, I earnestly trust our self-government may succour us, direct us from the path of temptation, and aid us to pursue that which contains the mature, the healthy, and the good. The brightest genius is liable to become a victim to some darling pleasure; and while we know that Shakespeare's character, mentally exalted though he was, was tainted with the transgressions of this life, we may reflect and seriously ponder, alone with ourselves, how that great bard would utter, in the temperate and subdued hours of manhood, the pathetic expressions of the following sonnet:

> Alas! 'tis true, I have gone here and there,
> And made myself a motley to the view,
> Gored mine own thoughts, sold cheap what is most dear,
> Made old affections of offences new.
> Most true it is, that I have looked on truth
> Askance and strangely; but, by all above,
> These blenches gave my heart another youth.

I have seen so much carnal extravagance in my short experience with youths that I cannot resist advising your correspondents to take care; but it would be useless to enumerate the evils here.

I will now pass on, however, to briefly look at the peculiar and innumerable gifts attendant upon the youthful mind. Some boys admire one thing and some another: while others would probably cherish all subjects. Whatever may be their inclinations, let me kindly counsel them to adhere to that gift which stands the most prominent upon the scroll of their intellects, as to neglect the nurture of a particular endowment would not only be

reducing its demands but would also effect a disparagement which would probably cause any other effort to raise the mind to a continual advancement; that is to say, from the presence of one gift we, without fail, undoubtedly should be, by gentle pursuits, implanting another; and from that skip to a third; and so on for ever. The endless number of themes capable of pleasing and instructing boys will be properly enjoyed only when justly comprehended: thus, a boy who understands the practical part of mechanics would not be so happy as one who could speak both of the practical and scientific portions. Therefore, it follows that if a youth has an engagement in business, of course he should not confine his knowledge to the external working of it, but endeavour likewise to carry his researches into the profoundest crevices of science, where such researchos can be obtained. If any of your contributors love music, which I do not doubt, let them aim to attain the internal qualities and quantities of music, as with its magical powers, its spellbound beauties, or its lulling and angelic vibrations. Let them not altogether delight to attend the opera or the concert simply to catch the rounded, blissful, and enchanting strains that may flutter with invisible wings through every "avenue of sound;" but let them study at home the harmonic theory of music, on purpose to become at any time favourable and genuine critics. I may apply the same argument to many other instances, but I find I am too extensively treating the subject, and infringing upon your space.

In conclusion, it is to be hoped that my young friends (for I will now talk in the present tense) are not enthusiastic, as when enthusiasm enters into the heart of us boys, being attended with excitement, there is no reliance to be placed upon our actions; we veer as the wind; we twist with uncertainty. Such youths as these, I hope, are not connected with your WONDER BOOK. They would first take it in with all the delight imaginable, and then permit their "first love" to dwindle away into disregard. Nevertheless, the folly of my fancying these things ought to be substituted with better considerations; and while I trust we shall follow the injunctions of reason, and obey the teachings of common sense, as long as our experience lasts, may we also bear upon our memories the mark of "excelsior," attempt to emulate our associates, and cast off the covering that binds us in the chrysalis of being, stand perfect intellectual giants, become free bodies in the atmosphere of knowledge, and extend our observation through the vast, the glowing, the blooming beauties of Nature.

Go on, dear youth, the glorious path pursue,
Which bounteous Nature kindly soothes for you;
Go, bid the seeds her hands have sown arise,
By timely culture, to their native skies;
Go, and employ the poet's heavenly art,
Not merely to delight, but mend the heart.

"THE LIFEBOAT."

BY ARTHUR STEVENS RIPLEY HARRIS.

"MAN the lifeboat!" What a deal is contained in those three words; how many times have those three words been uttered with the result of saving persons from a watery grave; how many times have the different lifeboats, scattered about the country, responded most nobly to that cry; and how many tongues have blessed the lifeboat for restoring to them a son or a daughter, a father or a mother. We, who sit comfortably in our homes, with our books and amusements, attach little importance or think little of the lifeboat; but were we to experience all the horrors of a shipwreck, or stand on the deck of a sinking vessel, without any hope or prospect of being saved from a watery grave, we should, I think, attach more importance to the lifeboat, and look eagerly for any sign of the little craft, and perhaps, if near to land, hear with joy the cry, "Man the lifeboat!" Is it not a noble thing to do good, or to save a fellow creature from death? At the wreck of the fated steamer "London," how much would not the young lady have given for a lifeboat, who stood on the deck of the sinking steamer and offered a thousand pounds if they would come back, with that crowded little craft, and take her off? But her money availed her nothing then, and she was drowned with many of her fellow-passengers. Yes, it is a noble thing to do good. One fearful winter day, the intelligence circulated through St. Andrew's that a vessel had been driven upon a sand-bank in the bay to the eastward of the town. A crowd of sailor citizens and students soon collected upon the beach, for the vessel had been cast ashore but a few hundred yards from the houses, and she lay so near, that though the heavy air was darkened by the driving sleet, they could see at intervals the figures of the crew clinging to rope or spar, ere each breaker burst upon her side, and shrouded all in surfy mist and darkness. In a calm sea a few vigorous strokes would have carried a good swimmer to the vessel's side, but now the hardiest fisherman drew back, and dared not face the fearful surge. At last a student of divinity volunteered. Tying a rope round his waist, and struggling through the surf, he threw himself among the waves. Forcing his slow way through the raging element, he was nearing the vessel's side, when his friends on shore, alarmed at the length of time and slow rate of recent process, began to pull him back. Seizing a knife which he carried between his teeth, he cut this rope away, and, reaching at last the stranded sloop, drew a fresh one from her to the shore; but, hungry, weak, and wearied, after four days' foodless tossing through the tempest, not one of the crew had strength or courage enough left to use it. He again rushed into the waves; he boarded the vessel; he took them man by man and bore them to the land. Six men were thus rescued. His seventh charge was a boy, so helpless that twice was the hold let go, and twice he had to dive after him into the deep. Meanwhile, in breathless stillness, the crowd had watched each perilous

passage, till the double figure was seen tossing landward through the spray. But when the deed was done and the whole crew saved, a loud cheer of admiring triumph rose around the gallant youth. This chivalrous action was performed by Mr. John Honey, one of Mr. Chalmers's early and cherished college friends, afterwards ordained as minister of Bendochy in Perthshire. But the trial of strength had been too much for him, and a short time after he sickened and died, going where he would receive a greater reward for his deed of love than any earthly mortals could give him. And I maintain that he who does a deed like that feels quite as happy as the proudest peer of the realm, who, having brought forward a measure, sees it pass, and knows it is beneficial to his fellow creatures. Let me ask those who read this, whether they cannot in their sphere of life be a lifeboat to some one or other; let them look around them and see whether there are not many people who need to hear the cry "Man the lifeboat!" and to accept the invitation to jump in and be taken away from that which tends to evil. Let my fellow readers be reminded that they can build a lifeboat in themselves (capable of doing good and saving souls) that needs no rough billows to sustain it towards those who cry for help; let them remember what the poet says:

Lives of great men all remind us
We can make our lives sublime,
And, departing, leave behind us,
Footprints on the sands of time;

Footprints that perchance another,
Sailing on life's stormy main,
A forlorn and shipwrecked brother,
Seeing, shall take heart again.

Let us then be up and doing,
With a heart for any fate,
Still achieving, still pursuing,
Learn to labour and to wait.

Yes, there are thousands of places in our towns and villages which require the cheerful and ready "manning of the lifeboat." And while we sit at home reading our WONDER BOOK, let us thank God that there are as many lifeboats as there are in our country, and let us try and do as much as we can for the "lifeboats" and their founders.

CORRESPONDENCE.

[All communications to be addressed to the Editor, at the Office, 3, Amen Corner Paternoster Row, E.C.]

F. P.—To produce transparent positives of any size, you require a copying camera, but you can easily make a substitute. Construct a box of light wood in which your camera can slide, and leave at the end a grooved aperture for the reception of the negative. The length of the box will depend upon the focus of the lens and the size of the positive required. Having fixed the negative in position with pins, move the camera till you get an image on the ground glass of the size required, and take care that no object, such as a house or a tree is between the camera and the clear sky; you may then proceed as for an ordinary positive. As no light enters the camera but what passes through the negative, the lights and shades are reversed, and the copy will be positive by transmitted light. A transparent positive may also be taken by any dry process by contact with the negative in the printing frame; but the positive will, of course, be the same size as the negative.

Apollo's Apprentice is informed that the difference between a positive and negative is a mere matter of density; a negative might be called an over-exposed and over-developed positive; or a positive might be called a very weak negative. The positive is a picture taken to be looked *at* by reflected light; the negative is taken to be looked *through* by transmitted light. They both appear the same when held up to the light—lights and shades reversed.

Musician.—Singing is very good for strengthening the lungs: and we have known many instances where it has had a most beneficial effect in persons apparently predisposed to consumption. You should avoid practising while the voice is breaking.

Enquirer.—We remember ourselves being puzzled; and comical were the remarks made by schoolfellows to the meaning of the word "entire" on the sign-board of public-houses. It professes to mean that the malt liquors sold are in the same condition as sent out by the brewers—not adulterated.

J.K. (Dublin).—Communications must reach us not later than the 15th.

An Amateur.—An ounce of silkworms' eggs represents about 40,000 of these little creatures. From the time the egg is hatched till the worm becomes full grown five weeks elapse, during which time the insect undergoes five skin castings. The best food is the leaf of the mulberry-tree—indeed, if fed on anything else they will degenerate.

Richard.—Yes. You are quite capable of judging; but don't act with rashness. To the latter question. No.

Edwin.—If you have not, you should try Sir Astley Cooper's method to avoid catching cold, In more senses than the one specially under notice, it would be wise, indeed, if such a plan were generally adopted. He says, "The methods by which I have preserved my own health are, temperance, early rising, sponging the body every morning with cold water immediately after getting out of bed, a practice which I have adopted for thirty years without ever catching cold."

F. W. (Shrewsbury).—Yes. We shall be glad to do what you ask.

James (Exeter).—If you want to entertain a party of school children in-doors, you cannot do better than hire a magic lantern, which is at all times an unfailing source of amusement. The expense of hiring is not very much.

E. H. Clunn.—Your communication is received. Thanks for your good wishes.

Albert Harris.—Iron can be dissolved in a mixture of oil of vitriol and water, and the solution on evaporation gives green crystals of sulphate of iron.

Robert Evans.—You should make your purchases at once, as the season is now advancing. A constant variety of live fowls you will find in Leadenhall Market.

E. R. (Richmond). — Biographical sketches are a great addition to a magazine if they are carefully written. We will see if we can get you what you want.

E. L. (Liverpool).—We cannot accede to your request. Among so many correspondents, it is desirable to be as brief as possible.

